Page 35 1 STATE OF MISSOURI 2 PUBLIC SERVICE COMMISSION 3 TRANSCRIPT OF PROCEEDINGS 4 5 Evidentiary Hearing 6 March 31, 2014 7 Jefferson City, Missouri 8 Volume 5 9 10 In the Matter of the Application) of Union Electric Company d/b/a) 11 Ameren Missouri For Permission) File No. and Approval and a Certificate) EA-2012-0281 12 of Public Convenience and) Necessity Authorizing it to) Construct, Install, Own, Operate,) 13 Maintain and Otherwise Control) 14 and Manage a Utility Waste) Landfill and Related Facilities) 15 at its Labadie Energy Center.) 16 MORRIS L. WOODRUFF, presiding, 17 CHIEF REGULATORY LAW JUDGE ROBERT S. KENNEY, Chairman, 18 STEPHEN M. STOLL, 19 WILLIAM P. KENNEY, DANIEL Y. HALL, 20 COMMISSIONERS. 21 REPORTED BY: 22 Patricia A. Stewart 23 RMR, RPR, CCR 401 Midwest Litigation Services 24 3432 West Truman Boulevard, Suite 207 Jefferson City, Missouri 65101 25 (573) 636-7551

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Page 37 PROCEEDINGS 1 2 (AMEREN MISSOURI EXHIBIT NOS. 1 THROUGH 12, 3 INTERVENORS' EXHIBIT NOS. 300 THROUGH 339, STAFF EXHIBIT NOS. 100HC, 100NP, 101HC, 101NP, 102, 103HC, 103NP, 104 4 5 THROUGH 106 WERE MARKED FOR IDENTIFICATION BY THE COURT 6 REPORTER.) 7 (WHEREUPON, the evidentiary hearing began at 8 8:30 a.m.) 9 JUDGE WOODRUFF: All right. Good morning 10 everyone. We're here to get started on the hearing on 11 12 the application of Union Electric Company, doing business as Ameren Missouri for a certificate of 13 service -- public convenience and necessity to operate a 14 utility waste landfill at Labadie Energy Center. This 15 16 is Case No. EA-2012-0281. We'll begin today by taking entries of 17 18 appearance, beginning with Ameren Missouri. 19 MR. LOWERY: Good morning, Your Honor. 20 Jim Lowery and Michael Tripp, the law firm of 21 Smith Lewis, LLP, P. O. Box 918, Columbia, Missouri 65205, appearing on behalf of Ameren Missouri. 22 23 Thank you. 2.4 JUDGE WOODRUFF: And for the Staff. 25 MR. WILLIAMS: Nathan Williams, Deputy Staff

Page 38 Counsel, P. O. Box 360, Jefferson City, Missouri 65102. 1 2 JUDGE WOODRUFF: Okay. And for Public 3 Counsel. MR. MILLS: On behalf of the Office of 4 5 Public Counsel, Lewis Mills. My address is Post Office Box 2230, Jefferson City, Missouri 65102. 6 7 JUDGE WOODRUFF: Okay. And for LEO and 8 Sierra Club. MS. LIPELES: On behalf of Intervenors 9 Labadie Environmental Organization and Sierra Club, 10 Maxine Lipeles and Elizabeth Hubertz, and then we have 11 12 with us three student practice rule certified law students, Giles Howard, Sydney Tonsfeldt and Tamara 13 14 Slater. 15 We're at Washington University School of Law, One Brookings Drive, Campus Box 1120, St. Louis 63130. 16 17 JUDGE WOODRUFF: I think your microphone is 18 not turned on. It should have a green light on it. 19 MS. LIPELES: Is that better? 20 MR. LOWERY: Tap it right there, right down 21 there, right up there. Yeah. 22 MS. LIPELES: Oh, okay. Is that working now? 23 JUDGE WOODRUFF: Much better now. MS. LIPELES: Okay. I'm sorry. Do you want 24 25 me to repeat that?

Page 39 JUDGE WOODRUFF: I think everybody in the 1 2 room got it. The problem is for the broadcast it 3 won't. --MS. LIPELES: Okay. 4 5 JUDGE WOODRUFF: -- pick it up unless you're on the microphone. 6 7 MS. LIPELES: Thank you. 8 JUDGE WOODRUFF: Thank you. 9 All right. And then we will -- I believe that's all of the parties, so we will go ahead and move 10 11 into opening statements. 12 But before we do that, I do want to remind 13 you that you please turn off your cell phones and other electronic devices. They tend to interfere with the 14 15 sound system and the transmission. 16 So we'll begin with opening statements for 17 Ameren. 18 MR. LOWERY: Good morning and may it please 19 the Commission. My name is Jim Lowery, and I, along with my 20 21 partner, Mike Tripp, represent Ameren Missouri in this certificate of public convenience and necessity, or CCN 22 23 case. 24 This case arose because the Company is quickly reaching the point where it must build a new 25

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| 1 | facility in order to manage the coal combustion | |
| 2 | residuals, or CCRs, that are produced at the Labadie | |
| 3 | plant as a necessary consequence of burning coal. | |
| 4 | As I think you probably know, the Labadie | |
| 5 | plant is the company's largest generating plant. It's | |
| 6 | about 2,400 megawatts, which to just give you some | |
| 7 | perspective, is about twice as large as the Callaway | |
| 8 | plant. | |
| 9 | The evidence will show that in Missouri and | |
| 10 | elsewhere pursuant to modern engineering practices and | |
| 11 | standards and also government regulations, the state-of- | |
| 12 | the-art method to dispose of CCRs is that that we | |
| 13 | cannot beneficially reuse is to dispose of them in a dry | |
| 14 | landfill. | |
| 15 | And indeed the Missouri Department of Natural | |
| 16 | Resources, or DNR, has specific regulations governing | |
| 17 | such facilities, and I'll sometimes refer to these as | |
| 18 | utility waste landfills, or UWLs. | |
| 19 | I refer what we've asked for in this case | |
| 20 | is an expansion of our existing certificate of public | |
| 21 | convenience and necessity of Labadie. | |
| 22 | A CCN was granted in the late 1960s that | |
| 23 | specifically described the Labadie plant site, but we | |
| 24 | need to expand that plant site to encompass additional | |
| 25 | land that is immediately adjacent to the plant site and | |

Page 41 thereby on that -- on that land we would be building the 1 2 proposed UWL. 3 Now, before I further address what we expect the evidence to show in this case, I think it might be 4 5 helpful to take a look generally at a little bit of 6 background about CCNs. 7 The requirement that a public utility under certain circumstances come to the Commission for a CCN 8 is found in Section 393.170, and in particular, in 9 Subsection 1 of that substitute. 10 I focus on Subsection 1 because Subsection 2, 11 12 which practitioners generally refer to as the area certificate portion of the statute, is not at issue 13 14 here. 15 And an area certificate, as you probably know, is a CCN that gives the utility the exclusive 16 17 right to serve customers in a particular area but also the obligation to serve all of those customers in the 18 19 area. 20 Here we're talking about a Subsection 1 CCN. 21 When we're talking about electric generating 22 plants for which we need a Subsection 1 CCN, a utility 23 is required to obtain the CCN reasonably 24 contemporaneously with the construction and it must be obtained before construction can commence, but since 25

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| 1 | we're not simply adding or replacing to a component of | |
| 2 | the power plant within its already certificated | |
| 3 | boundary, the case law indicates that we need to come | |
| 4 | and whether you call it a new CCN or you call it an | |
| 5 | expanded CCN, I think the substance of it is the same. | |
| 6 | We're expanding the bound asking to expand the | |
| 7 | boundary of our plant. | |
| 8 | So what are you being asked to decide in this | |
| 9 | case? | |
| 10 | The statute and the cases answer that | |
| 11 | question for us. The task the General Assembly has | |
| 12 | delegated to you is determined to determine if it is | |
| 13 | necessary or convenient for the public service for | |
| 14 | Ameren Missouri to expand the boundary of its Labadie | |
| 15 | plant, which would thereby allow to build the UWL that | |
| 16 | we're talking about. | |
| 17 | Note that the statutory focus is on the | |
| 18 | public service, which the case law makes clear is a | |
| 19 | reference to the utility's obligation to provide utility | |
| 20 | service, the service that you regulate. | |
| 21 | Now, how do you go about making that | |
| 22 | determination? | |
| 23 | The courts tell us that the Commission must | |
| 24 | ask itself whether the improvement, with that | |
| 25 | improvement being focused on an improvement to its | |

Page 43 ability to provide public service, whether the 1 2 improvement is worth making. 3 If indeed what the utility is asking for permission to do is an improvement to the utility's 4 5 infrastructure that would help it maintain or improve or promote its ability to provide service, the cases tell 6 7 us that it is, in fact, a public convenience or 8 necessity. The cases in the CCN area and in the PSC law 9 generally make clear that you're not being asked to make 10 11 ratemaking determinations in this case. You're not 12 being asked to pass on the prudence of the project. In 13 fact, you really couldn't make ratemaking determinations in this case because you have to consider all relevant 14 15 factors that have a bearing on rates when you make ratemaking decisions, and you can't really do that in a 16 17 case like this. 18 At a high level, when you boil down the statutory standard and the case law, the question that 19 20 you're being asked is this: Has the utility made a 21 reasonable case that granting the CCN that it's asking you to grant will promote its ability to provide utility 22 service at just and reasonable rates? And if the answer 23 24 to that question is yes, then the CCN should be granted. 25 I would submit to you that the answer to that

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| 1 | question in this case is unmistakably yes and then some, | |
| 2 | and the Staff agrees, indicating in its position | |
| 3 | statement and in its prefiled testimony that the | |
| 4 | evidence supports the conclusion that the public | |
| 5 | convenience or necessity supports granting the Company's | |
| 6 | request with three conditions that Staff recommends. | |
| 7 | First, that the Company not be able to | |
| 8 | actually exercise, go ahead with construction, even | |
| 9 | though we would have the CCN, until such time as we | |
| 10 | receive a construction permit from DNR. | |
| 11 | Second, that we would not be able to proceed | |
| 12 | with construction until such time as we have a land | |
| 13 | disturbance permit from DNA. | |
| 14 | And, thirdly, that you include in your order, | |
| 15 | which I think in every CCN order that I've ever seen, | |
| 16 | you always do, language that says that that confirms | |
| 17 | that you are not making ratemaking determinations and | |
| 18 | that those are deferred for a future rate case. | |
| 19 | We agree that these are appropriate | |
| 20 | conditions. The Office of the Public Counsel has | |
| 21 | indicated its support for Staff's position in this case. | |
| 22 | So the Staff, the Company and Public Counsel | |
| 23 | I believe all agree that it's appropriate to grant the | |
| 24 | CCN with those conditions. | |
| 25 | So why is the CCN appropriate in this case? | |

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| 1 | In order to operate its largest and arguably | |
| 2 | most important baseload power plant, we have got to have | |
| 3 | a means to dispose of the CCRs that necessarily result | |
| 4 | from burning coal to produce power. | |
| 5 | There is no real dispute about that. There | |
| 6 | is certainly no evidence contrary to that. | |
| 7 | The evidence will show that there are three | |
| 8 | choices at least in theory there are three choices | |
| 9 | for doing so: One, to build a UWL at the Labadie site; | |
| 10 | two, to build a UWL elsewhere and truck the CCRs to that | |
| 11 | facility; or three, to truck the CCRs to a third-party | |
| 12 | commercial landfill. | |
| 13 | The evidence will show that to implement | |
| 14 | either Option 2 or 3 would require that the Company send | |
| 15 | 42,000 trucks per year, or about 160 trucks every | |
| 16 | working day, away from the plant to another UWL. | |
| 17 | That number would increase in the early 2020s | |
| 18 | to 53,000 trucks per year, or more than 200 trucks per | |
| 19 | day, once we install scrubbers at the Labadie plant, | |
| 20 | which we expect to have to do in the early 2020s. | |
| 21 | If you think about that, that's 160 to more | |
| 22 | than 200 tractor-trailer rigs every single working day | |
| 23 | for the next 24 years traversing the rural roads in | |
| 24 | Franklin County and elsewhere, with the attendant risks | |
| 25 | of accidents, pollution potential pollution from | |

Page 46 accidents, et cetera. 1 2 So from an operation standpoint it's pretty 3 obvious what makes the most sense here, and that is to build a UWL at Labadie. It also makes the most sense by 4 5 far from a cost and economic perspective to do that. 6 The evidence will show that over the useful 7 life of the UWL, plus the required MDNR 20-year post closure period, the revenue requirement that would be 8 9 reflected in rates our customers would pay associated with this facility would be far, far lower under 10 Option 1 than it would be under Options 2 and 3. 11 12 And I'm going to put on the screen a table that is in Mr. Giesmann's prefiled testimony that 13 depicts those figures, and hope that you can see them 14 15 okay. 16 As you can see from the table, there is a 17 nearly \$100 million difference between Options 1 and 2 and more than a \$250 million difference between 18 Options 1 and 3, and those numbers are conservative. 19 20 And the reason I say that is the analysis 21 that led to those numbers did not escalate transportation costs even one dime over the next 22 23 24 years, but if you look at how much transportation has 24 escalated in just the last six or eight years, and really historically when you think about what one would 25

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| 1 | expect transportation costs to do over the next | |
| 2 | 24 years, you can readily conclude that transportation | |
| 3 | costs are likely to increase a great deal, and it's the | |
| 4 | transportation costs that drive the much greater expense | |
| 5 | for Options 2 and 3. | |
| 6 | So given those facts, why are we here for | |
| 7 | three days of contested hearings? | |
| 8 | We are here because and I think Staff puts | |
| 9 | it best Intervenors want you to, quote, encroach upon | |
| 10 | or usurp, end quote, MDNR's delegated authority to | |
| 11 | decide if it's environmentally appropriate to put a UWL | |
| 12 | at Labadie. | |
| 13 | The Intervenors, of course, would explain it | |
| 14 | to you differently. They would explain it in terms of | |
| 15 | some factors that you looked at in the past, but if you | |
| 16 | take a look at what the evidence in the case is going to | |
| 17 | show, all of the evidence that they point to, or nearly | |
| 18 | so, relates to environmental issues that are squarely | |
| 19 | within MDNR's jurisdiction and expertise and that are | |
| 20 | indeed covered by MDNR's extensive regulations governing | |
| 21 | these kinds of facilities. | |
| 22 | Summed up in one sentence, Intervenors want | |
| 23 | you to make a decision that they do not trust MDNR to | |
| 24 | make; that is, they want you to decide that the UWL | |
| 25 | should not be built because in their view it's not | |

1 protective of the environment.

| 2 | Indeed the filings in this case show that the |
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| 3 | Intervenors recognize that it is MDNR that has the |
| 4 | authority to issue a construction permit, yet MDNRs are |
| 5 | here or Intervenors are here doing their level best |
| 6 | to take a second bite at the apple in the hope that you |
| 7 | will be drawn into a technical debate between geologists |
| 8 | and engineers and make a different decision than the |
| 9 | one, I would submit, they are concerned that MDNR is |
| 10 | going to make. |
| 11 | There is really no question that the General |
| 12 | Assembly has delegated this authority to MDNR. It's |
| 13 | reflected in Chapter 260, and it's reflected in eleven |
| 14 | pages of single-spaced eleven single-spaced pages of |
| 15 | regulations that govern utility waste landfills. |
| 16 | The DNR process is not a quick, ministerial |
| 17 | process. In fact, it typically takes about five years |
| 18 | to complete. |
| 19 | MDNR's regulations address safety. They |
| 20 | address protection of human health and the environment. |
| 21 | They address the qualifications of the constructor, |
| 22 | owner and operator. They address financial |
| 23 | responsibility of the constructor, owner and operator. |
| 24 | Extensive data and studies regarding |
| 25 | hydrology, hydrogeology, seismicity, groundwater, soil, |

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Page 49 et cetera, must be developed and submitted and reviewed 1 2 by DNR. 3 The first part of that formal process is what's called a preliminary site investigation, and that 4 5 was done in this case. It was submitted to DNR and DNR approved it. 6 7 And that means preliminarily DNR says, 8 preliminarily we find that the site is appropriate. 9 The second part of their process is what's called a detailed site investigation, and a detailed 10 site investigation, as the name implies, is a very 11 12 detailed undertaking that reflects the results of 13 extensive hydrogeological and other studies. 14 In our case it consisted of more than 1,500 pages of data, studies, results, reports, 15 et cetera, which was submitted to DNR and also approved 16 17 by DNR. By approving the DSI, DNR has made the 18 determination that this site is appropriate for a UWL as 19 long as it's appropriately designed and it meets their 20 21 other requirements. And that brings us to the last part of their 22 23 process, which is the part that we are nearing the end 24 of with DNR now, and that is the process of submitting a construction permit application, or CPA. 25

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| 1 | The CPA itself is a massive document | |
| 2 | reflecting a massive undertaking. | |
| 3 | This is the CPA that we have submitted, and | |
| 4 | on top of this there is a couple of very large rolls of | |
| 5 | drawings that are also submitted to DNR. | |
| 6 | And a copy of the CPA in its entirety is | |
| 7 | included as a schedule to Mr. Giesmann's prefiled | |
| 8 | testimony. | |
| 9 | MDNR pours over every page, fact, data point, | |
| 10 | analysis, calculation, et cetera, in the CPA to confirm | |
| 11 | the proposed facility would meet its requirements and | |
| 12 | ultimately is protective of human health and the | |
| 13 | environment, which, of course, is the task that the | |
| 14 | General Assembly has asked it to do. | |
| 15 | MDNR will have the final word. If MDNR says | |
| 16 | we're not going to give the Company a construction | |
| 17 | permit, the UWL will not be built; but if MDNR does | |
| 18 | issue the construction permit, which we expect them to | |
| 19 | do in May of this year, MDNR has made the decision that | |
| 20 | the site is appropriate, the design is appropriate, will | |
| 21 | be protective of human health and the environment, and | |
| 22 | also that the operator is qualified to construct it. | |
| 23 | Now, I noted a moment ago that Intervenors | |
| 24 | recognize that MDNR has that authority. I say that in | |
| 25 | part because early in this case Intervenors asked you to | |

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| 1 | dismiss the application that we filed. | |
| 2 | One of the arguments they made in asking you | |
| 3 | to dismiss the application we filed is reflected in one | |
| 4 | of the sentences that is in their motion to dismiss. | |
| 5 | And I'm going to put it up on the screen so | |
| 6 | you can follow along with me. | |
| 7 | What Intervenors said, and I quote, is that | |
| 8 | the Missouri Legislature has expressly given the | |
| 9 | Department of Natural Resources power to grant permits | |
| 10 | for the construction and operation of utility waste | |
| 11 | landfills. DNR has a comprehensive set of regulations | |
| 12 | for the construction and operation of such landfills. | |
| 13 | If the Commission this Commission were | |
| 14 | to also take on the duty of regulating landfill | |
| 15 | construction and operation, the duplicative effort could | |
| 16 | lead to confusing, contradictory and dilatory | |
| 17 | requirements. | |
| 18 | We wholeheartedly agree with everything that | |
| 19 | Intervenors had to say there, but, of course, we're not | |
| 20 | asking you to, quote, grant a permit for the | |
| 21 | construction of the UWL. We are asking you to grant a | |
| 22 | CCN that allows us to expand our plant boundary. | |
| 23 | And we're asking you to do that based upon | |
| 24 | the statutory charge that you've been given, and that | |
| 25 | is, asking yourself is a CCN necessary, is a CCN | |

Page 52 convenient, does a CCN promote our ability to provide 1 2 utility service under the standards that the courts have 3 set out for you. Now, notwithstanding Intervenors' recognition 4 5 that it is MDNR that properly decides if the UWL is designed right, sited properly, protective of human 6 7 health and the environment, ironically, virtually all of the evidence that they point to is a direct assault on 8 that -- on the entire idea that it's protective of human 9 10 health and the environment. It's an assault on the facts, data, et cetera that is contained in the CPI. 11 12 Put another way, Intervenors are inviting you 13 to do MDNR's job and to second-guess MDNR's expertise. 14 Now, putting aside for a moment that MDNR will ultimately make the decision on whether this UWL is 15 the appropriate structure to be built at this location, 16 17 the evidence in this case indeed will reflect that Intervenors' assertions that the site is inappropriate 18 simply don't stand scrutiny. 19 20 And the evidence will show that the three 21 contentions that Intervenors make in their position statement, which are this, one, that an alternative 22 location should be chosen; two, that Ameren is not 23 qualified; or three, that the project isn't economically 24 feasible are also unsupported assertions not based in 25

1 evidence.

| 2 | Under Section 393.170.1 Ameren Missouri |
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| 3 | didn't have to and doesn't have to prove that it had no |
| 4 | alternative but to build this particular facility. |
| 5 | All Ameren Missouri has to prove is that the |
| 6 | UWL at Labadie is necessary or convenient for the public |
| 7 | service, and I've already talked about the standards of |
| 8 | government. |
| 9 | Nor is there any evidence that Ameren |
| 10 | Missouri is not qualified to construct such a facility, |
| 11 | save the mud-slinging allegations that Intervenors have |
| 12 | made based upon a few pieces of paper involving Ameren |
| 13 | Missouri's Venice plant in Illinois, or its former |
| 14 | Venice plant, and some coal plants that were formerly |
| 15 | operated by Ameren Energy Resources in Illinois. |
| 16 | As you probably know, AER was formerly an |
| 17 | affiliate of Ameren Missouri. Those plants have |
| 18 | recently been sold to Dynegy. |
| 19 | As Intervenors' witness Mr. Norris admits, he |
| 20 | doesn't really know very much about the details of the |
| 21 | operation of those plants or the coal ponds at those |
| 22 | plants. |
| 23 | By contrast, Ameren Missouri Witness Gary |
| 24 | King, who spent more than 20 years as a regulator with |
| 25 | the Illinois EPA, which is Illinois's counterpart to |

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| 1 | MDNR, testifies firsthand about what actually did or did |
| 2 | not take place with regard to those plants, and that |
| 3 | real story bears no resemblance to the assertions that |
| 4 | Intervenors have made. |
| 5 | In fact, not only is Ameren Missouri not the |
| 6 | bad actor that Intervenors would have you believe that |
| 7 | it is but MDNR has already recognized that Ameren |
| 8 | Missouri is qualified to design and construct a facility |
| 9 | just like this or essentially just like this. |
| 10 | Ameren Missouri already has a construction |
| 11 | permit for a dry ash UWL at its Sioux facility and is |
| 12 | already operating that facility, starting its operations |
| 13 | in 2013. So obviously MDNR has determined that Ameren |
| 14 | Missouri is qualified. |
| 15 | And finally, there is simply no credible, |
| 16 | nonspeculative evidence that some material cost has not |
| 17 | been accounted for in determining what the cost of the |
| 18 | facility will be to own and operate that would come |
| 19 | anywhere close to changing the fact that Option 1 that I |
| 20 | talked about before is clearly the most cost-effective |
| 21 | choice. |
| 22 | As Staff points out, there is no question |
| 23 | that it's economically feasible for Ameren to build this |
| 24 | facility. We certainly have the financial wherewithal |
| 25 | to make the \$27 million capital investment, eventually |

Page 55 up to 84 million when all four cells are put in. 1 2 And not only can Ameren Missouri finance it 3 and build it but it's economically sensible to build the facility. 4 5 As the hearing progresses, you're going to hear from five Ameren Missouri witnesses. The first of 6 7 those is Mr. Craig Giesmann, who is a professional engineer and a director of hydro engineering at Ameren 8 Missouri. 9 10 Mr. Giesmann is a University of Missouri-Rolla trained civil engineer, with about 11 12 18 years of experience in a wide variety of projects, 13 including projects that have applied principles that directly apply to this kind of facility. 14 15 Mr. Giesmann is the project manager on this project, which is a role that he also played in the 16 17 construction of the new state-of-the-art upper reservoir at the Taum Sauk plant. 18 19 Our second witness is Mr. Steven Putrich, also a professional engineer who has more than 25 years 20 21 of experience in the field. Mr. Putrich holds bachelor's and master's 22 degrees in civil engineering, with an emphasis on 23 24 geotechnical and environmental engineering. 25 Mr. Putrich, in fact, specializes in the

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| 1 | design and construction of facilities very much like | |
| 2 | this, sometimes almost exactly like this, and also has | |
| 3 | particular expertise involving CCRs. | |
| 4 | Our next witness is Dr. Lisa Bradley. | |
| 5 | Dr. Bradley has undergraduate degrees in | |
| 6 | chemistry and zoology and a Ph.D. in toxicology from | |
| 7 | MIT. Dr. Bradley has been a practicing toxicologist for | |
| 8 | approximately 20 years and also has particular expertise | |
| 9 | involving CCRs. | |
| 10 | Our last witness our next witness is | |
| 11 | Mr. King, as I mentioned before, the former Illinois EPA | |
| 12 | regulator, who has firsthand knowledge about what has or | |
| 13 | hasn't taken place in Illinois involving coal ponds. | |
| 14 | And our last witness is Mr. Tyler Gass, who | |
| 15 | has been a practicing hydrogeologist for the last | |
| 16 | 30 years. Mr. Gass has an undergraduate degree in | |
| 17 | geology and a master of science degree in geosciences. | |
| 18 | We've engaged these witnesses, in addition to | |
| 19 | Mr. Giesmann, because Intervenors were allowed to | |
| 20 | intervene in this case and there have been there have | |
| 21 | been a lot of allegations based on what ifs and | |
| 22 | questions and concerns that don't really have much basis | |
| 23 | in fact, science and data, and we wanted to make sure | |
| 24 | that you had the information on those topics that are | |
| 25 | based on facts, science and data. | |

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| 1 | In concluding my opening statement, I'd ask | |
| 2 | for you to keep the following in mind: The Labadie | |
| 3 | plant is a low-cost, critical part of Ameren Missouri's | |
| 4 | generation portfolio and it's necessary to support | |
| 5 | Ameren Missouri's ability to provide electric service at | |
| 6 | just and reasonable rates. | |
| 7 | It's nearly out of room to dispose of CCRs | |
| 8 | and we must have an alternative. The proposed UWL is a | |
| 9 | state-of-the-art means to dispose of these UWLs without | |
| 10 | the risk to human health and the environment that 160 to | |
| 11 | 200 trucks per day for the next 24 years would pose, and | |
| 12 | the proposed UWL is by far the most economic solution | |
| 13 | for the Company and for its ratepayers. | |
| 14 | I appreciate your attention this morning and | |
| 15 | look forward to presenting the case to you. | |
| 16 | JUDGE WOODRUFF: Any questions? | |
| 17 | CHAIRMAN KENNEY: Yes. | |
| 18 | MR. LOWERY: Good morning, Commissioner. | |
| 19 | CHAIRMAN KENNEY: Good morning. | |
| 20 | How are you? | |
| 21 | MR. LOWERY: I'm good. | |
| 22 | CHAIRMAN KENNEY: Thank you very much. | |
| 23 | I have a few questions that are of a legal | |
| 24 | nature, and so that's why I'm going to direct them to | |
| 25 | you, and probably direct the same questions to each of | |

Page 58 the other attorneys as well. 1 2 I get the impression from Ameren's position 3 statement and the testimony in your opening statement that environmental concerns shouldn't necessarily enter 4 5 into our analysis. 6 Is that a fair summary of Ameren's threshold 7 position? MR. LOWERY: It is. We -- we said that in 8 9 our opposition to Intervenors' request to intervene in this case. We said it in our position statement. And I 10 think in substance Staff has said essentially the same 11 12 thing in their position statement. CHAIRMAN KENNEY: Then Ameren notes that 13 393.170 governs and then in your position statement you 14 15 cite a couple of cases. Does -- is it Ameren's position that the five 16 17 factors that are laid out in that In Re: Tartan case are inappropriate? 18 19 I mean, I know you state that you went either way, but is it Ameren's position that those five factors 20 21 aren't necessary, that our analysis should cease as it's delineated in 393.170? 22 23 MR. LOWERY: Those five factors are not 24 necessary. They're not necessary in the Tartan case or any other case that you've used them. 25

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| 1 | That's not to say that you can't use them. |
|---|--|
| 2 | It's not to say that it's inappropriate that you've |
| 3 | considered them in the past. |
| 4 | But a difference in this case that is not |
| 5 | always present in certain you know, if you're doing |
| 6 | transmission line, you're doing a substation, you're |
| 7 | doing other types of facilities. |
| 0 | Vou der It alware have a situation where we |

8 You don't always have a situation where you 9 have another State agency -- in this case it's a State 10 agency. It could be a local authority, but in this case 11 it's a State agency, that has specifically -- very 12 specifically been delegated the authority to look at 13 certain issues.

14 And when you have that circumstance, it would be my position that it is inappropriate for you to apply 15 whatever factors, whether they're the five Tartan 16 factors or other factors you might want to look at, and 17 wade into all of those same areas, and in effect, try to 18 come to your own conclusion about things that, with all 19 20 due respect, this agency doesn't have the same level of 21 expertise and certainly hasn't been delegated the authority to make those kinds of decisions. 22 23 So I guess the answer is yes, I think some of 24 them are inappropriate for this case, but I can 25 understand in the past why they've been applied in

1 certain cases.

| 2 | CHAIRMAN KENNEY: So you just mentioned two |
|----|--|
| 3 | items, that we may or may not have the expertise and we |
| 4 | may or may not have the authority, and so let me take |
| 5 | the second point first. |
| 6 | If we do assume that those five factors set |
| 7 | forth in the Tartan Energy case are appropriate, can |
| 8 | considerations of environmental concerns be a part of |
| 9 | whether the facilities and service promote the public |
| 10 | interest; in other words, what comprises the public |
| 11 | interest as contemplated in Tartan Energy and as we're |
| 12 | sitting here today? |
| 13 | MR. LOWERY: I think what I think the case |
| 14 | law and, you know, we just had a couple citations in our |
| 15 | position statement. I wasn't trying to write a brief at |
| 16 | the time. |
| 17 | But I think the case law is pretty persuasive |
| 18 | that the public's interest that you're charged with |
| 19 | protecting here is that primarily of ratepayers. |
| 20 | Primarily the public interest is ensuring |
| 21 | that we have good utility service at reasonable rates, |
| 22 | at just and reasonable rates. |
| 23 | There is cases that talk about the fact that |
| 24 | the interest of particular landowners, local interests, |
| 25 | those kinds of things, for example, they do not comprise |

Page 61 the public interest. It's the larger public interest 1 2 and primarily ratepayers. 3 So from that standpoint, if you're trying to make an environmental public interest determination 4 5 that's apart from what promotes the ability of the Company to provide public utility service, I do think it 6 7 would be inappropriate. 8 CHAIRMAN KENNEY: But what about public's 9 health and safety, is that part of the public interest? 10 I mean, because you talk about the narrow interest of particular landowners. What if it's not the 11 12 narrow interest of particular landowners and it's public health and safety generally speaking? 13 14 MR. LOWERY: I don't believe that that's the -- I don't believe that's the area that this 15 Commission has been charged with regulating in these 16 17 cases. 18 I think this Commission has been charged with regulating what promotes good public utility service at 19 just and reasonable rates. I think DNR is charged with 20 21 protecting public health and safety. CHAIRMAN KENNEY: Just so I can be clear 22 then: Public health and safety is not a component of 23 24 the public interest for purposes of our determination of whether to issue a CCN? 25

Page 62 MR. LOWERY: I don't believe so in this case 1 2 given DNR's regulatory scheme. 3 CHAIRMAN KENNEY: All right. I think those are all of the legal questions I have. Thank you for 4 5 your time. 6 MR. LOWERY: Thank you. 7 JUDGE WOODRUFF: Anything else? 8 COMMISSIONER STOLL: I have nothing. 9 COMMISSIONER HALL: Yes, I have a few. 10 MR. LOWERY: Sure. COMMISSIONER HALL: My line of questioning is 11 12 pretty similar to the Chairman's, and I'll do my best to 13 not duplicate those specific questions but I just want to make sure I understand. 14 15 Your position is that environmental concerns are never ever to be considered part of the public 16 17 interest in front of this Commission for this type of application? 18 19 MR. LOWERY: No, I don't think -- I don't believe that is my position, but I believe when you have 20 21 a circumstance where the particular issue at issue has been specifically delegated by the General Assembly to 22 here another State agency who is looking at -- that 23 24 is -- that is their sole purpose in life with regards to this particular facility is to look at the protection of 25

Page 63 public safety, human health and the environment, then I 1 2 don't think it's appropriate. 3 There are CCN cases that could have an impact on safety, could have an impact on the public in 4 5 general, that there really isn't any other agency that -- there is no permitting process. There is no 6 7 review process. In that case, sure, I think you have the discretion to look at them there. 8 9 You may -- you may literally have the discretion to look at it here, but I -- it's my position 10 11 that it's really not appropriate that you do so. 12 COMMISSIONER HALL: What would be an example of a case where we should consider environmental 13 14 concerns? MR. LOWERY: Well, I'm not sure that 15 necessarily DNR has a role in all power plant siting 16 17 decisions, for example, necessarily. They do for utility waste landfills. They do for certain 18 facilities, but I'm not sure they do there. 19 20 So if you were going to build a new power 21 plant and they didn't, then, sure, I would think that the Commission at least would have some interest in 22 those issues. 23 24 I don't think generally a substation would present environmental issues, although you have 25

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| 1 | transformers that contain oil and those kinds of things, | |
| 2 | so it could be a relevant consideration. It certainly | |
| 3 | wouldn't be it wouldn't have the kind of profile that | |
| 4 | you might have in a case like this. | |
| 5 | COMMISSIONER HALL: Looking at the five | |
| 6 | factors in the Tartan Energy case, the first four don't | |
| 7 | appear to me to be at all within DNR's jurisdiction, so | |
| 8 | I'm a little confused as to why you say that that why | |
| 9 | you say to the contrary. | |
| 10 | MR. LOWERY: Well, I don't have them | |
| 11 | committed to memory, to be honest with you, but one of | |
| 12 | them I think deals with qualifications. | |
| 13 | Let me see if I can find it, if you'll just | |
| 14 | indulge me just a second, Commissioner. | |
| 15 | COMMISSIONER HALL: Sure. | |
| 16 | MR. LOWERY: Whether there's a need for the | |
| 17 | facility or the service, certainly whether there's a | |
| 18 | need for us to construct a utility waste landfill | |
| 19 | certainly would be something that would be. | |
| 20 | And I wasn't saying that none of them would | |
| 21 | apply. None of them are mandatory. These are these | |
| 22 | are discretionary administrative factors that you folks | |
| 23 | have historically looked at. The statute doesn't | |
| 24 | require you to look at them. So I would agree with | |
| 25 | that. | |

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| 1 | On the qualification, I don't believe I | |
| 2 | believe DNR is absolutely the entity that's been charged | |
| 3 | with determining whether we're qualified to construct | |
| 4 | and design and operate a utility waste landfill. | |
| 5 | That's that's right in the middle of what their | |
| 6 | regulations cover. | |
| 7 | Financial ability, sure. We we certainly | |
| 8 | meet the financial ability standard. I don't think | |
| 9 | there is any question about that. But, sure, I think | |
| 10 | that's something that you can look at, but DNR's | |
| 11 | regulations also address that. | |
| 12 | Economic feasibility. You're not really | |
| 13 | being asked to make ratemaking decisions or pass on the | |
| 14 | prudence of the investment here, but in certain | |
| 15 | respects, you know, in a CCN case the Commission | |
| 16 | typically does at least consider at a high level some of | |
| 17 | those issues, and I don't have an issue with the | |
| 18 | Commission looking at that here. | |
| 19 | Whether the facilities and service promote | |
| 20 | the public interest. As long as we're confining ourself | |
| 21 | to the appropriate public interest and, again, that's | |
| 22 | the interest in promoting safe and adequate utility | |
| 23 | service at just and reasonable rates you would look | |
| 24 | at that. | |
| 25 | The whole issue of public interest is talking | |

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| 1 | about human health, the environment and safety. Again, | |
| 2 | I think that's DNR's job in this particular instance. | |
| 3 | COMMISSIONER HALL: Okay. When DNR reviews, | |
| 4 | considers and makes a decision on any of the permit | |
| 5 | applications that the Company will submit, are they | |
| 6 | looking at alternatives? | |
| 7 | MR. LOWERY: I don't believe that they are. | |
| 8 | I think that they're making a determination, | |
| 9 | is what the applicant is asked to do, is it an | |
| 10 | appropriate site, is the design appropriate and is it | |
| 11 | going to be protective of human health and the | |
| 12 | environment. So I don't think they get into the issue | |
| 13 | of could they have done something else. | |
| 14 | COMMISSIONER HALL: And so if DNR does not | |
| 15 | look at alternatives and you ask that this Commission | |
| 16 | not look at alternatives, there would be no entity | |
| 17 | looking at alternatives? | |
| 18 | MR. LOWERY: I guess that might be true. | |
| 19 | I think the point is, the utility has the | |
| 20 | the utility has the right to manage its own operations, | |
| 21 | and the Commission doesn't tell the utility to go build | |
| 22 | a coal plant or to go build a combined cycle plant or a | |
| 23 | peaker or to put a transmission line here or to do | |
| 24 | particular things in order to provide service. The | |
| 25 | utility makes those decisions. | |

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| 1 | Now, the utility has the ultimate check on it |
| 2 | from the Commission, in that if a utility is making |
| 3 | imprudent decisions, the utility is going to have it |
| 4 | taken out of its hide, so to speak, when it seeks to |
| 5 | recover those costs and rates. |
| 6 | But it traditionally has not been, and I |
| 7 | think the case law would indicate that it's not the |
| 8 | Commission's role to dictate other alternatives. |
| 9 | I certainly understand if a utility comes in |
| 10 | and says, I want to do this and we haven't even looked |
| 11 | at anything else, well, the Commission would have |
| 12 | legitimate questions, why would you have done that? |
| 13 | We have looked at other things here, and |
| 14 | we've provided you evidence of how those how those |
| 15 | shook out. |
| 16 | So I think the Commission is is is |
| 17 | looking at alternatives here. We've looked at |
| 18 | alternatives here. But at the end of the day we made a |
| 19 | decision, and I think I think under the standards |
| 20 | we meet the standards to get the CCN here. |
| 21 | COMMISSIONER HALL: But when you're asking us |
| 22 | to look at al when you're talking about alternatives |
| 23 | here, you're talking about alternatives strictly in |
| 24 | terms of their effect on the ratepayers; you're not |
| 25 | you're not discussing with us alternatives as they |

Page 68 relate to the environment? 1 MR. LOWERY: No. That's true. 2 3 COMMISSIONER HALL: Okay. Are you aware of -- I'll hold that question 4 for other parties. 5 6 I'm done. Thank you. 7 JUDGE WOODRUFF: Thank you, Mr. Lowery. 8 MR. LOWERY: Thank you. JUDGE WOODRUFF: Move on then for Staff. 9 10 MR. WILLIAMS: Thank you. 11 May it please the Commission. My name is Nathan Williams and I'm appearing here on behalf of your 12 13 Staff that are appearing as parties in this case -- as a party in this case. 14 15 Ameren Missouri has requested that this Commission grant it a certificate of convenience and 16 17 necessity for a utility waste landfill for its Labadie Energy Center. 18 19 Staff anticipates that much of the evidence in this case will center on environmental concerns. 20 21 While those concerns are important, the State of Missouri has charged the Department of Natural Resources 22 with addressing those concerns on a statewide basis, not 23 the Public Service Commission. 24 Staff anticipates that the evidence in this 25

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| 1 | case will show that Ameren Missouri's Labadie Energy | |
| 2 | Center is beneficial to its electric utility operations, | |
| 3 | operations which serve approximately 1.2 million of | |
| 4 | Missourians. | |
| 5 | That operation of the Labadie Energy Center | |
| 6 | necessarily produces coal combustion residuals, that the | |
| 7 | State of Missouri restricts how Ameren Missouri may | |
| 8 | dispose of those residuals, giving the Missouri | |
| 9 | Department of Natural Resources statewide regulatory | |
| 10 | authority over the site and construction and operation | |
| 11 | of utility waste landfills. | |
| 12 | That the closer the utility waste landfill is | |
| 13 | to the Labadie Energy Center, the lower the cost to | |
| 14 | transport coal combustion residuals to dispose of them. | |
| 15 | That from a utility operations perspective, | |
| 16 | which is the perspective this Commission should be | |
| 17 | looking at things from, the proposed utility waste | |
| 18 | landfill will provide a benefit that exceeds its cost, | |
| 19 | and that Ameren Missouri has ample financial resources | |
| 20 | to build and operate the utility waste landfill without | |
| 21 | adversely affecting its ability to provide safe and | |
| 22 | adequate service to its electric retail customers. | |
| 23 | Therefore, contingent on Ameren Missouri | |
| 24 | obtaining from the Missouri Department of Natural | |
| 25 | Resources both a utility waste landfill construction | |

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| 1 | permit and a land disturbance permit for the proposed | |
| 2 | utility waste landfill before it exercises the rights | |
| 3 | the certificate of convenience and necessity allows it | |
| 4 | to exercise, the Commission should grant Ameren Missouri | |
| 5 | a certificate of convenience and necessity for the | |
| 6 | proposed Labadie Energy Center utility waste landfill. | |
| 7 | Staff recommends that the Commission include | |
| 8 | in any order where it grants Ameren Missouri a | |
| 9 | certificate of convenience and necessity for a utility | |
| 10 | waste landfill for Ameren Missouri's Labadie Energy | |
| 11 | Center, a statement that the Commission by its grant is | |
| 12 | not making any determination of the ratemaking treatment | |
| 13 | of the costs associated with a utility waste landfill by | |
| 14 | that order. | |
| 15 | Staff also recommends that the Commission | |
| 16 | order Ameren Missouri to notify the Commission when the | |
| 17 | contingencies are met by filing copies of the permits in | |
| 18 | this case. | |
| 19 | After Ameren Missouri's witnesses testify, | |
| 20 | John Cassidy will testify regarding financial related | |
| 21 | aspects of the proposed landfill, and Staff Witness Dan | |
| 22 | Beck will testify regarding the engineering and | |
| 23 | operational aspects of the proposed landfill. | |
| 24 | I believe you probably have a few questions | |
| 25 | for me. | |

Page 71 1 JUDGE WOODRUFF: Mr. Chairman. 2 CHAIRMAN KENNEY: Indeed. 3 Good morning, Mr. Williams. Let me ask a question, and you heard me ask 4 5 it of Mr. Lowery. 6 If we look at the -- if we assume that the 7 Tartan Energy five factors are appropriate, can we --8 and is it appropriate to examine public health and 9 safety under the fifth factor whether the service 10 promotes the public interest? MR. WILLIAMS: I would say that those factors 11 12 are statements of things that the Commission has looked at a very high level and very broad in scope, and I 13 think for purposes of a utility operation perspective 14 15 they're appropriate, but the Commission should be deferring to sister State agencies and other entities, 16 17 political subdivisions, on decisions they've made. 18 For example, in the -- I believe it was the 19 StopAquil-- StopAquila.org case. I don't know if you're familiar with that or not. 20 21 But the court certainly cited with approval a statement by the Commission in a certificate case --22 actually it involved a generating facility here in 23 Jefferson City, where the Commission said -- and this is 24 a quote from the StopAquila opinion which is quoting the 25

1 Commission. 2 In short, we emphasize we should take 3 cognizance of and respect the present municipal zoning and not attempt under into the guise of public 4 5 convenience and necessity to ignore or change that 6 zoning. 7 What Staff is advocating is that the Commission should defer to the sister State agency, and 8 9 part of the reason -- well, the reason for saying that 10 the grant of the certificate of convenience and necessity should be contingent upon Ameren Missouri 11 12 getting the construction permit and the land disturbance permit is out of deference to Missouri Department of 13 14 Natural Resources. 15 I think the Commission's role is to regulate utilities. It's not to look out for environmental 16 17 concerns per se. 18 I mean, as they relate to utility operations, I think the Commission can consider and -- consider them 19 and act on them. It certainly has a safety role, 20 21 although it's been very limited in how it's exercised 22 it. 23 I mean, where you're getting into is how much control does the Commission exercise over the management 24 of the utility, and the line has moved around, I'd say, 25

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1 over the years.

| 2 | CHAIRMAN KENNEY: I'm not sure I'd agree with |
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| 3 | that last component, that it's how much control should |
| 4 | we exercise over the management of the utility because I |
| 5 | think it's I'm not sure I would let me state it |
| 6 | slightly differently and perhaps pose it as this: What |
| 7 | are the outer parameters of the public interest? |
| 8 | Because I don't know that there's a definition of the |
| 9 | public interest. Are there any outer parameters? |
| 10 | MR. WILLIAMS: I think it's very fact |
| 11 | dependent and a lot in the eye of the beholder. |
| 12 | I don't think it's limited to rate-paying |
| 13 | customers. I think the emphasis is on them particularly |
| 14 | now, but I don't think it's I think it's limited |
| 15 | it's the public as a whole. |
| 16 | CHAIRMAN KENNEY: Is it limited to economic |
| 17 | and traditional ratemaking issues? |
| 18 | We are economic regulators obviously, so |
| 19 | should we confine our public interest analysis to |
| 20 | economic concerns? |
| 21 | MR. WILLIAMS: You do have safety |
| 22 | jurisdiction. There's been a case where the courts |
| 23 | the Commission well, Kansas City Power & Light |
| 24 | Company wanted to acquire something other than lead |
| 25 | fuses in a box and they wanted to charge the customers |

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| 1 | for the cost of that, and the Commission said, no. It's |
| 2 | too costly. We're not going to do it. And the courts |
| 3 | came out and said, no. That's a safety issue. Of |
| 4 | course they can do it. |
| 5 | I think the bottom line is the answer is |
| 6 | going to be found in the courts. The Commission can |
| 7 | push the envelope as far as it wants to try to push it, |
| 8 | but I don't know where the line is. |
| 9 | CHAIRMAN KENNEY: Fair enough. |
| 10 | Then I would summarize what you're saying |
| 11 | then, that environmental issues, public health and |
| 12 | safety can be a part of our analysis under the fifth |
| 13 | Tartan Energy factor? |
| 14 | MR. WILLIAMS: Well, I think they would be. |
| 15 | It's a matter of how much emphasis you put on them, and |
| 16 | I believe you should be deferring to other agencies and |
| 17 | other entities that have been charged with those as |
| 18 | being more primary considerations in their role as to |
| 19 | what they're doing. |
| 20 | CHAIRMAN KENNEY: So let me give you a |
| 21 | hypothetical. Let's assume that there let's assume |
| 22 | this is a completely different CCN case with a |
| 23 | completely different utility but it's to build a UWL in |
| 24 | Labadie Bottoms, and all the evidence shows us that the |
| 25 | technology being used is not state of the art and |

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| 1 | there's a high likelihood of groundwater contamination. | |
| 2 | Let's assume that everybody let's | |
| 3 | assume this is a hypothetical hearing obviously, but | |
| 4 | let's assume every party conceded that fact. | |
| 5 | And it's the Missouri Public Service | |
| 6 | Commission and the Missouri Department of Natural | |
| 7 | Resources. | |
| 8 | Because there's a sister agency in my | |
| 9 | hypothetical, should we defer and ignore all of the | |
| 10 | evidence that shows that groundwater would, in fact, be | |
| 11 | contaminated and, say, we'll just defer to DNR on that | |
| 12 | issue? | |
| 13 | It's the cheapest alternative and we know | |
| 14 | there's a sister agency involved in the analysis, so we | |
| 15 | need not concern ourselves with any of those concerns | |
| 16 | MR. WILLIAMS: I think you would do what | |
| 17 | Staff is suggesting in this case and, yes, defer to the | |
| 18 | sister agency. You certainly can inform them about what | |
| 19 | you know, about what you have learned during your | |
| 20 | proceeding. | |
| 21 | CHAIRMAN KENNEY: But even under my | |
| 22 | hypothetical you would say that we should confine | |
| 23 | ourselves to the economic analysis and just let the | |
| 24 | sister agency deal with all those other concerns? | |
| 25 | MR. WILLIAMS: Well, the particular concerns | |

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| 1 | you've raised are I think squarely within the province | |
| 2 | of the Missouri Department of Natural Resources by | |
| 3 | legislative charge, so, yes, I do think you should be | |
| 4 | deferring to them even in that circumstance. | |
| 5 | CHAIRMAN KENNEY: Okay. | |
| 6 | MR. WILLIAMS: I'll also say I don't believe | |
| 7 | what's the statute in 393.170 is quite as granular as | |
| 8 | the courts of appeal have said since 1960 or that Ameren | |
| 9 | Missouri has said before you here today. | |
| 10 | My personal view is that the Commission has | |
| 11 | breadth in how much authority it grants in a | |
| 12 | certificate, whether it be narrow as a line or broad as | |
| 13 | an area. | |
| 14 | CHAIRMAN KENNEY: I think that's all I have. | |
| 15 | Thank you. | |
| 16 | JUDGE WOODRUFF: Commissioner Stoll. | |
| 17 | COMMISSIONER STOLL: I have no questions. | |
| 18 | JUDGE WOODRUFF: Commissioner Hall. | |
| 19 | COMMISSIONER HALL: Yes. Thank you. | |
| 20 | Good morning. | |
| 21 | MR. WILLIAMS: Good morning. | |
| 22 | COMMISSIONER HALL: The Intervenors obviously | |
| 23 | are obviously take the position that the CCN should | |
| 24 | not be granted, but they further argue that if it is | |
| 25 | granted, there are series of conditions that we should | |

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| 1 | put on that grant, one of which I wanted to ask you | |
| 2 | about, and that is, that Ameren shall not be able to | |
| 3 | charge, include in its rate or any other way recover | |
| 4 | from ratepayers and members of the public costs | |
| 5 | attributable to environmental damage caused by the | |
| 6 | landfill. | |
| 7 | What is Staff's position on that condition? | |
| 8 | MR. WILLIAMS: Staff would not recommend | |
| 9 | recommend the Commission not impose that condition. | |
| 10 | That would be something that would be dealt with in a | |
| 11 | rate proceeding, not in a certificate proceeding, or at | |
| 12 | least I'm not aware that any such condition has ever | |
| 13 | been imposed in the context of a certificate case. | |
| 14 | COMMISSIONER HALL: Are you aware of any | |
| 15 | of any ratemaking cases where such a condition was or | |
| 16 | such a position was part of the rate determination of | |
| 17 | this Commission? | |
| 18 | MR. WILLIAMS: Not offhand I'm not. I'm not | |
| 19 | going to say it's not occurred. I'm just not aware of | |
| 20 | it offhand if it has. | |
| 21 | COMMISSIONER HALL: Are you aware or is | |
| 22 | Staff aware of any instances where this Commission took | |
| 23 | environmental concerns into account when granting a CCN? | |
| 24 | MR. WILLIAMS: I'm not aware of any. | |
| 25 | COMMISSIONER HALL: Okay. I have no further | |

Page 78 questions. 1 2 JUDGE WOODRUFF: All right. Thank you. 3 Thank you, sir. For Public Counsel. 4 5 MR. MILLS: Good morning. May it please the 6 Commission. 7 I can be very brief because I think 8 Mr. Lowery and Mr. Williams both did a very good job of 9 explaining the legal parameters around your decision 10 today, and I think they -- I agree with them, that you're -- you are somewhat constrained. 11 12 As the Chairman noted, your primary role is 13 as an economic regulator rather than an environmental regulator, and so your primary focus should be on the 14 15 economic aspects of the proposal in front of you. 16 I'm going to try to go through and address 17 some of the questions that have already come up, and that may spur some additional questions. 18 19 But one of the questions had to do with 20 the -- with the parameters around the public interest 21 and does the public interest encompass more than just ratepayers? And, yes, it certainly does. 22 23 Does it encompass local concerns? Yes, it 24 does. 25 This Commission in the Callaway-Franks

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| 1 | transmission line, for example, weighed the interest of | |
| 2 | local landowners and their disagreement with the land | |
| 3 | and the the disagreement with the line and the impact | |
| 4 | the line would have on them in particular with the | |
| 5 | benefits to the overall body of ratepayers, and in that | |
| 6 | case came to the conclusion that the public interest lay | |
| 7 | in granting a CCN for the line. | |
| 8 | But in doing so they specifically considered | |
| 9 | local concerns, and I think the Commission should do so | |
| 10 | here, should do so in every case. | |
| 11 | Health and safety, certainly that is a | |
| 12 | concern, although I agree with both the Staff and the | |
| 13 | Company, that that is in this instance primarily the | |
| 14 | concern of the Department of Natural Resources. | |
| 15 | But the you know, I was trying to think of | |
| 16 | an example where this Commission would take that on, and | |
| 17 | there may be some, but I think in a lot of instances | |
| 18 | there is another agency that is charged with that. | |
| 19 | So, for example, you know, if if a company | |
| 20 | had a proposal to dispose of nuclear waste in a | |
| 21 | particular way and for some reason the NRC wasn't | |
| 22 | involved, then I think this Commission could take that | |
| 23 | on if no in no other agency was looking at that. | |
| 24 | If there was a proposal to build a | |
| 25 | transmission line near an airport and the FAA didn't | |

Page 80 have regulations that looked at that, I think this 1 2 Commission could look at that. 3 So I think it's -- as Mr. Williams said, I think it's a fact-specific question. If there is a 4 5 vacuum there and no other agency is evaluating health and safety concerns, then I think your role should be 6 7 greater. 8 Here, when there is a specific State agency 9 taxed specifically with looking at this specific project, I think your role in that respect is relatively 10 limited. 11 12 With respect, Mr. Chairman, to your 13 hypothetical, it's difficult to say what you should do with that because it's so -- it is different from the 14 case we have here. 15 16 There is -- there is a substantial amount of 17 evidence both in front of you and in front of the Department of Natural Resources with respect to the --18 to the environmental and engineering aspects of this 19 particular UWL. 20 21 But I think, you know, if you were faced with this situation, you know, where the process -- in that 22 hypothetical if the process was fairly far along and it 23 24 looked as though DNR was going to improperly fulfill their role, you know, I would be pragmatic about it, and 25

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| 1 | if you-all were sort of the failsafe, you know, under | |
| 2 | those circumstances, if I were a commissioner, I would | |
| 3 | be very tempted to push the envelope of my authority and | |
| 4 | say, no, we're not going to permit this and then, you | |
| 5 | know, we'll get the courts involved. | |
| 6 | But that's not the that's not the | |
| 7 | situation here. That's not the hypothetical we have in | |
| 8 | front of us. | |
| 9 | And finally, with respect to Commissioner | |
| 10 | Hall, with respect to your question about examples, it | |
| 11 | may not be exactly the same, but I think the Taum Sauk | |
| 12 | case is an example of ratepayers being held harmless for | |
| 13 | an environmental issue. | |
| 14 | We litigated that in one of the company's | |
| 15 | rate cases. The Company wanted to put into rates some | |
| 16 | of the costs of rebuilding the Taum Sauk reservoir on | |
| 17 | the grounds that while they agreed not to put in any | |
| 18 | costs of rebuilding it, they argued that they ought to | |
| 19 | be able to to recover costs of rebuilding it better. | |
| 20 | So in other words, the incremental costs of | |
| 21 | building a better, safer, more reliable reservoir than | |
| 22 | existed before. | |
| 23 | And this Commission, based on Public | |
| 24 | Counsel's urging, declined to allow those in rates. So | |
| 25 | customers were held harmless for as far as I'm | |

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Page 82 concerned, from all aspects of the Taum Sauk disaster. 1 2 I don't think any costs at all flowed through rates from 3 any aspect of that problem. And with that I'd be -- if there are 4 5 additional questions, I'd be happy to try and answer 6 them. 7 JUDGE WOODRUFF: Mr. Chairman. CHAIRMAN KENNEY: Just one, Mr. Mills. Thank 8 9 you. 10 And I just want to summarize what I think you, Mr. Lowery and Mr. Williams have all said. 11 12 There is nothing that ultimately prohibits us from taking into account environmental concerns, public 13 health and safety as a component of examining the public 14 interest? 15 16 MR. MILLS: I agree with that, yes. 17 CHAIRMAN KENNEY: There may be this idea that it's not necessary because DNR is charged with that or 18 that it's inappropriate because DNR is already charged 19 20 with that, but there is no explicit prohibition on us 21 doing it if we so choose? 22 MR. MILLS: Correct. 23 And, in fact, I think it is always an aspect 24 of the public interest. It's a question of how deeply you get into that and how much you second-guess another 25

Page 83 entity that may be involved in it. 1 2 CHAIRMAN KENNEY: I think you've adequately 3 answered all the rest of my questions, the benefit of going third I guess. 4 5 Thanks. 6 JUDGE WOODRUFF: Commissioner Stoll. 7 COMMISSIONER STOLL: No questions. JUDGE WOODRUFF: Commissioner Hall. 8 9 COMMISSIONER HALL: No questions. 10 JUDGE WOODRUFF: Thank you. 11 MR. MILLS: Thank you. 12 JUDGE WOODRUFF: Then for LEO and Sierra 13 Club. 14 MR. HOWARD: I was going to place this image in front of me, but perhaps it would be better if I 15 place it along there, Your Honor, so I'll see it. 16 17 JUDGE WOODRUFF: Yeah, just a little bit behind there, off your shoulder there would be good. 18 19 You can go ahead and move the --MR. HOWARD: Would you like me to use the 20 21 easel? JUDGE WOODRUFF: Go ahead and use the easel, 22 23 yeah. MR. HOWARD: May it please the Commission, 24 Judge Woodruff, Your Honors. 25

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| 1 | My name is Giles Howard. I'm a Rule 13 | |
| 2 | certified law student at Washington University, School | |
| 3 | of Law's Interdisciplinary Environmental Clinic, and | |
| 4 | together with my co-counsel today I represent the | |
| 5 | Intervenors, the Labadie Environmental Organization and | |
| 6 | the Sierra Club. | |
| 7 | The Labadie Environmental Organization is a | |
| 8 | group of ratepayers who live in the vicinity of the | |
| 9 | Labadie Energy Center and rely on groundwater for their | |
| 10 | drinking water. | |
| 11 | The Sierra Club is an organization with | |
| 12 | statewide membership, many of whose members rely on the | |
| 13 | Missouri River for their drinking water. | |
| 14 | Your Honors, this is a case about | |
| 15 | consequences. Recognizing the consequences of one's | |
| 16 | actions, grappling with them and evaluating alternatives | |
| 17 | is how responsible decisions are made. | |
| 18 | But Ameren has selected the Labadie site | |
| 19 | without investigating alternative sites. Ameren has | |
| 20 | touted the site's affordability without planning for the | |
| 21 | future costs of the site's environmental liabilities. | |
| 22 | This is not responsible decision making and | |
| 23 | the consequences could cost ratepayers dearly. | |
| 24 | That's why the Intervenors are before this | |
| 25 | Commission today, because although MDNR considers | |

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| 1 | proposed projects for its impact on environmental |
| 2 | quality, this Commission has a responsibility to |
| 3 | consider the environmental impacts on the costs to |
| 4 | ratepayers. |
| 5 | Ameren's proposed Labadie site is a uniquely |
| 6 | dangerous site for a coal ash landfill because it is a |
| 7 | washing groundwater, is in the flood plain and floodway |
| 8 | of the Missouri River and sits in a seismic zone. Some |
| 9 | of these challenges are obvious to the naked eye. |
| 10 | To my right is a photo of the site submerged |
| 11 | in water on July 6, 2011. |
| 12 | A berm did not fail. The river did not |
| 13 | flood. Instead, groundwater welled up from below the |
| 14 | site. |
| 15 | This is a regular occurrence at the site, and |
| 16 | we know this in part because Ameren performed a site |
| 17 | investigation as part of the DNR permitting process. |
| 18 | That report noted, quote, actual water table |
| 19 | depth below ground surface typically ranged from two to |
| 20 | thirteen feet during a given month, but in some |
| 21 | instances groundwater rose up to and in some cases |
| 22 | slightly exceeded ground surface elevation, close quote. |
| 23 | The site was also totally flooded by river |
| 24 | water in 1993. |
| 25 | While Ameren will build a berm, berms do not |

Page 86 last forever and Ameren will not maintain that berm 1 2 forever. 3 Although the seismic dangers are less obvious to the naked eye, they are equally serious. Labadie's 4 5 location in the seismic impact zone puts it at risk of 6 liquefaction. 7 This means that when an earthquake hits the site, the soil will turn to mush, likely damaging the 8 landfill and sending contaminants into the groundwater 9 10 and the Missouri River. 11 Ameren says that the landfill will be 12 operational for 24 years. Ameren's post-closure plan covers an additional 20 years, but the public will bear 13 the risks of this project forever. 14 Yet Ameren never once considered alternative 15 sites. Ameren said so in response to Staff's data 16 17 request, and the history of this landfill project proves it as well. 18 19 Ameren initially sought to build one coal ash landfill to service the Labadie, Rush Island and Meramec 20 21 plants. Ameren did not consider building the regional coal ash landfill anywhere except at Labadie, but 22 Franklin County balked. 23 24 When it amended its zoning regulations to allow coal ash landfills, it specified that out-of-25

Page 87 county coal ash was not welcome in Franklin County. 1 2 With its regional landfill plan rejected, 3 Ameren simply shrunk the proposed facility. Without considering other locations, it continued with its plans 4 5 to use the Labadie site to dump the Labadie plant's coal ash and it looked for other disposal sites for the 6 7 Meramec and Rush Island plants. Ameren never investigated a different, safer 8 9 site for the Labadie plant. It cannot prove a need for this landfill at this location without first examining 10 alternatives. 11 12 In addition, Ameren cannot prove the site's 13 economic feasibility because it has not accounted for future costs associated with natural hazards. 14 15 Ameren doesn't plan for the fact that the contaminants in coal ash persist indefinitely. The 16 17 toxicity of this proposed landfill will not decrease with time, but Ameren failed to include in its plan any 18 estimate of the future costs of contamination. 19 Ameren also failed to address the cost of 20 21 future repairs necessitated by flooding, earthquakes or groundwater contamination. 22 23 The site's current state proves that the 24 potential for contamination is real. In 1992 Ameren reported two leaks from Labadie's unlined ash pond, 25

Page 88 totalling about 50,000 gallons per day. These leaks 1 2 persisted for at least 20 years. 3 There is no indication that Ameren ever conducted groundwater monitoring to determine the 4 5 effects of these leaks or of others that may be below the surface and not detectable without groundwater 6 7 monitoring. But across the site from -- across the road 8 9 from the leaking ash pond Ameren is finding contamination at the proposed landfill site. 10 Of 87 samples collected by Ameren during the 11 12 first three groundwater monitoring events, 80 showed violations of Federal drinking water standards for 13 contaminants associated with coal ash. These 14 80 violations included arsenic at more than six times 15 the Federal standard. 16 17 There is no question the disposal of coal ash in a properly designed and well-situated landfill is 18 less risky than in ash ponds, but this site is not well 19 situated. 20 21 The proposed site presents risks of catastrophic failure that Ameren has not taken into 22 account. And what may be cheaper today could be 23 24 catastrophically more expensive in the future if the landfill contaminates the groundwater or the Missouri 25

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| 1 | River, two sources of drinking water for area | |
| 2 | ratepayers. Ameren has not calculated the cost of these | |
| 3 | risks. | |
| 4 | The construction of this coal ash landfill | |
| 5 | will be costly both in the near and long term. The | |
| 6 | natural hazards of the Labadie site impact those costs | |
| 7 | and pose serious public health challenges. | |
| 8 | Ameren has not fully accounted for those | |
| 9 | costs, nor has it planned adequately for those natural | |
| 10 | hazards. For this reason the construction of this | |
| 11 | landfill will have serious consequences for ratepayers. | |
| 12 | Ameren has a duty to those ratepayers to | |
| 13 | consider alternative sites and adequately plan for costs | |
| 14 | associated with the landfill. It has done neither and | |
| 15 | its application for a CCN should thus be denied. | |
| 16 | Thank you. | |
| 17 | JUDGE WOODRUFF: Mr. Chairman. | |
| 18 | CHAIRMAN KENNEY: Thank you. | |
| 19 | Just a few questions. | |
| 20 | Rather than denying the application, would | |
| 21 | the Commission have the authority to order conditions | |
| 22 | along the lines of perhaps the establishment of | |
| 23 | something similar to a nuclear decommissioning trust | |
| 24 | fund or some pot of money set aside to address the | |
| 25 | concerns that LEO is concerned about? | |

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| 1 | MR. HOWARD: Well, certainly the Commission | |
| 2 | has the authority to impose conditions in granting a | |
| 3 | CCN, but one way to avoid the necessity of such a fund | |
| 4 | would be to require Ameren to evaluate alternative, less | |
| 5 | risky sites that don't face these sorts of natural | |
| 6 | hazards. | |
| 7 | CHAIRMAN KENNEY: So Ameren's and this may | |
| 8 | be a question better put to the fact witnesses and the | |
| 9 | experts, but I'll ask you anyway. | |
| 10 | So Ameren has said that it analyzed 22 | |
| 11 | additional sites. Is it LEO's contention that that | |
| 12 | analysis was done for purposes of creating a Labadie | |
| 13 | regional center and that, therefore, that's not | |
| 14 | applicable in these circumstances? | |
| 15 | MR. HOWARD: Although you're correct that | |
| 16 | Ameren did evaluate 22 sites, Ameren said itself that | |
| 17 | those sites were evaluated for the disposal of the Rush | |
| 18 | Island and Meramec coal waste. And furthermore, the | |
| 19 | matrix in which those 22 sites are listed is dated in | |
| 20 | 2008, whereas Ameren began buying the land for the | |
| 21 | proposed Labadie facility in 2007. | |
| 22 | So it's clear that Ameren had made up its | |
| 23 | mind about Labadie before it even looked at those | |
| 24 | 22 sites. | |
| 25 | CHAIRMAN KENNEY: One final question. Why | |

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| 1 | shouldn't we, for purposes of examining the | |
| 2 | environmental concerns, defer to the sister agency of | |
| 3 | the Department of Natural Resources and limit our | |
| 4 | inquiry to the economic analysis? | |
| 5 | MR. HOWARD: Because, Commissioner, the | |
| 6 | economic analysis is intertwined here with the | |
| 7 | environmental analysis. | |
| 8 | And although it's true that MDNR does have | |
| 9 | responsibility for examining projects in terms of the | |
| 10 | impact on environmental quality, environmental impacts | |
| 11 | also impact the cost of services, and that's why this | |
| 12 | Commission should be concerned with those environmental | |
| 13 | impacts in this case, because a natural hazard such as | |
| 14 | an earthquake or a flood could catastrophically impact | |
| 15 | the cost of this project. | |
| 16 | CHAIRMAN KENNEY: I lied. Just one more | |
| 17 | question. | |
| 18 | Did Mr. Norris quantity all of those | |
| 19 | additional economic concerns? Are they quantified? | |
| 20 | Because if it isn't because what you're saying | |
| 21 | essentially is that the economic and the environmental | |
| 22 | analysis is analyses are intertwined by virtue of the | |
| 23 | fact that there are costs associated with those | |
| 24 | potential environmental catastrophes. | |
| 25 | Does Mr. Norris quantify them? | |

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| 1 | MR. HOWARD: Mr. Norris does not plan out the |
| 2 | potential dollar amount cost of each of these events, |
| 3 | but more importantly Ameren didn't do any such |
| 4 | quantification. And if any party in this proceeding has |
| 5 | such a responsibility, it would be the party proving the |
| 6 | economic feasibility of the plan and that's Ameren. |
| 7 | CHAIRMAN KENNEY: Thank you. |
| 8 | JUDGE WOODRUFF: Commissioner Stoll. |
| 9 | COMMISSIONER STOLL: I have a question. |
| 10 | Could you tell me, do you know what the |
| 11 | effect of the '93 and '95 floods were on the ash pond? |
| 12 | Was it inundated? What happened in '93 and '95? I |
| 13 | don't know the answer to this. |
| 14 | MR. HOWARD: I don't have the information on |
| 15 | the impact on the ash ponds, sir. |
| 16 | COMMISSIONER STOLL: Okay. I will ask |
| 17 | someone else then. |
| 18 | Thank you. |
| 19 | JUDGE WOODRUFF: Commissioner Hall. |
| 20 | COMMISSIONER HALL: Good morning. |
| 21 | MR. HOWARD: Good morning. |
| 22 | COMMISSIONER HALL: It appears to be your |
| 23 | position that this Commission should take environmental |
| 24 | factors into consideration because there is a |
| 25 | relationship between the environmental factors and the |

Page 93 potential cost to ratepayers. Is that correct? 1 2 MR. HOWARD: Yes, sir. 3 COMMISSIONER HALL: So if we were -- if we were to grant the application but make it conditional 4 5 upon any environmental damage could not be included in future ratemaking, would you still be opposed to that? 6 7 MR. HOWARD: Well, although that would 8 address part of the concern, as has been pointed out 9 before, the public interest factor does address the interests of the public at large and of local 10 individuals. 11 12 And the impact of a Taum Sauk like event, although ratepayers were eventually after litigation not 13 required to pay for that, it still did impact those 14 15 broader public interests that this Commission is charged with evaluating. 16 17 COMMISSIONER HALL: So it sounds like you believe we should take into account environmental 18 concerns separate and apart from how they may impact 19 rates? 20 21 MR. HOWARD: Yes, Your Honor. COMMISSIONER HALL: Do you have any instances 22 where this Commission did so? 23 24 MR. HOWARD: I do not, but it's important to 25 note that this, as far as we are aware, is the first

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| 1 | time this Commission has been faced with a UWL of this | |
| 2 | nature, and so it poses questions that this Commission | |
| 3 | has not faced before. | |
| 4 | COMMISSIONER HALL: All right. Thank you. | |
| 5 | MR. HOWARD: Thank you. | |
| 6 | JUDGE WOODRUFF: Thank you, sir. | |
| 7 | MR. LOWERY: Judge, if I might, since the | |
| 8 | Commissioners have obviously expressed a significant | |
| 9 | interest in the legal aspects of what they should take | |
| 10 | into account, I had forgotten about this, but you have, | |
| 11 | Commissioners, not you literally but the Commission | |
| 12 | itself, has faced a somewhat analogous situation in the | |
| 13 | past, and that was when the Callaway plant was built. | |
| 14 | And the contention at that time was that a | |
| 15 | CCN should not be granted, you should not give your | |
| 16 | permission, because the NRC, there were radiation | |
| 17 | hazards and there hadn't been a there hadn't been | |
| 18 | a you know, a plan, and that's still true today, of | |
| 19 | exactly what is going to be done with all of the nuclear | |
| 20 | waste. | |
| 21 | And I want to read to you what you said, or | |
| 22 | what the Commission at that time said, and this finding | |
| 23 | was affirmed by the Court of Appeals for the Eastern | |
| 24 | District in a case bought by UCCM, Utility Consumers | |
| 25 | Council. | |

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| 1 | You said the considerations of the Commission |
| 2 | do not attempt to protect the citizens of Missouri |
| 3 | against radiation hazards, end quote. You also went on |
| 4 | to say that the Commission must determine whether it |
| 5 | will issue a certificate of convenience and necessity. |
| 6 | To arrive at its determination the Commission |
| 7 | must find that the nuclear facility is adequate to meet |
| 8 | the needs of the public and is economical when compared |
| 9 | to other alternative sources of energy, end quote. |
| 10 | You specifically declined or the |
| 11 | Commission at that time specifically declined to do what |
| 12 | you're being asked to do here. |
| 13 | So I would submit there is not precedent |
| 14 | because stare decisis doesn't bind you, I realize, but |
| 15 | there is some precedent for how the Commission has dealt |
| 16 | with this somewhat analogous situation in the past. |
| 17 | CHAIRMAN KENNEY: What year was that? |
| 18 | MR. LOWERY: I'll give you the cite, |
| 19 | Commissioner. It's 562 Southwest 2nd 688, 698, 99, |
| 20 | 1978, Mo. App, Eastern District. |
| 21 | CHAIRMAN KENNEY: Were there intervenors like |
| 22 | the Sierra Club or some similar organization in those |
| 23 | cases? |
| 24 | MR. LOWERY: I am almost certain that the |
| 25 | answer to that is yes, and that's exactly why the |

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Page 96 Eastern District was dealing with this on appeal. 1 2 I don't recall which entity it was. It may 3 have been UCCM actually, or it may have been another --I don't mean this in a derogatory way but an 4 5 anti-nuclear kind of group. 6 But I'm almost sure. I'd have to look at the 7 case again. It's been a while. CHAIRMAN KENNEY: It was 562 Southwest 2nd 6 8 9 what? MR. LOWERY: 88. 10 11 CHAIRMAN KENNEY: Thank you. 12 JUDGE WOODRUFF: Response? 13 MS. LIPELES: Thank you. 14 We'd be happy to address this in our post-15 hearing brief, but I just wanted to point out that the regulatory structure with respect to nuclear facilities 16 17 is different, and the NRC has some exclusive jurisdiction that could affect the analysis that doesn't 18 apply in the case of environmental -- the kind of 19 environmental jurisdiction that has DNR has, so I'm not 20 21 sure that it's analogous. 22 JUDGE WOODRUFF: Okay. 23 All right. That's it for opening statements then. We'll take a short break before we come back with 24 the first witness. Let's come back at 9:55. 25

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| 1 | (A RECESS WAS TAKEN.) | |
| 2 | JUDGE WOODRUFF: All right. Let's come back | |
| 3 | to order here, please. | |
| 4 | Okay. We've had our break and we're back for | |
| 5 | the first witness, which I believe would be Mr. Giesmann | |
| 6 | for Ameren. | |
| 7 | And, Mr. Giesmann, if you'd raise your right | |
| 8 | hand I'll swear you in. | |
| 9 | (Witness sworn.) | |
| 10 | JUDGE WOODRUFF: Thank you. | |
| 11 | CRAIG GIESMANN testified as follows: | |
| 12 | DIRECT EXAMINATION BY MR. LOWERY: | |
| 13 | Q. Would you please state your name for the | |
| 14 | record? | |
| 15 | A. Craig Jeffery Giesmann. | |
| 16 | Q. Mr. Giesmann, you've caused to be prepared | |
| 17 | for filing in this docket four pieces of testimony, | |
| 18 | direct, surrebuttal, sur-surrebuttal and supplemental | |
| 19 | testimony that have been prefiled as Exhibits 1 through | |
| 20 | 4. Is that correct? | |
| 21 | A. That's correct. | |
| 22 | Q. Do you have any corrections to any of those | |
| 23 | testimonies? | |
| 24 | A. I do not. | |
| 25 | Q. If I were to ask you the questions that are | |

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| 1 | posed in those testimonies, would you give the same |
| 2 | answers today? |
| 3 | A. Yes. |
| 4 | Q. Are those answers true and correct to the |
| 5 | best of your knowledge and belief? |
| 6 | A. Yes. |
| 7 | MR. LOWERY: With that, Your Honor, I would |
| 8 | offer Exhibits 1 through 4 into the record and tender |
| 9 | Mr. Giesmann for cross-examination. |
| 10 | JUDGE WOODRUFF: Exhibits 1, 2, 3 and 4 have |
| 11 | been offered. |
| 12 | Any objections to their receipt? |
| 13 | Hearing no objections, they will be received. |
| 14 | (AMEREN MISSOURI EXHIBIT NOS. 1 THROUGH 4 |
| 15 | WERE RECEIVED INTO EVIDENCE.) |
| 16 | JUDGE WOODRUFF: For cross-examination, we |
| 17 | would begin with Staff. |
| 18 | MR. WILLIAMS: Thank you, Judge. |
| 19 | CROSS-EXAMINATION BY MR. WILLIAMS: |
| 20 | Q. Mr. Giesmann, are you familiar you should |
| 21 | be with your direct testimony that's been marked as |
| 22 | Exhibit 1? |
| 23 | A. I am. |
| 24 | Q. On page 3 at lines 11 to 13 there is the |
| 25 | question, how important is the Labadie Energy Center to |

Page 99 1 the Company's ability to provide electric service at 2 just and reasonable rates? 3 And in response to that you testified, the 4 Labadie Energy Center is the Company's largest power 5 plant, providing approximately 40 percent of the energy consumed by its customers each years. Labadie is also 6 7 the Company's most economical coal-fired plant. Do you 8 not? 9 Α. That's correct. 10 And when you say in your response that Ameren Q. 11 Missouri's Labadie Energy Center provides approximately 12 40 percent of the energy consumed by its customers each year, is that based on a comparison of the annual 13 14 megawatt hours of output from the Labadie Energy Center 15 to Ameren Missouri's annual megawatt hours of sales of 16 electricity to its retail customers? 17 Α. Retail and off-system. And do you know what the numbers were that 18 Q. you compared to arrive at the approximately 40 percent? 19 20 Α. Not offhand. I know that the Labadie Energy 21 Center is approximately 2,400 megawatt capacity and our whole capacity is about 10.5 gigawatts. 22 To get the 40 percent you have to look at the 23 24 gross megawatt hours from all of the power plants put together, and then Labadie contributes approximately 25

Page 100 40 percent of that. 1 2 You testified that the Labadie Energy Center Q. 3 is Ameren Missouri's most economical coal-fired plant. 4 By most economical do you mean that the 5 financial cost on a per megawatt hour basis of electricity generated are lower for the Labadie Energy 6 7 Center than for any of Ameren Missouri's other 8 coal-fired plants? 9 Α. That's correct. 10 And where does the Labadie Energy Center rank Q. 11 in terms of being economical in comparison to all of 12 Ameren Missouri's energy centers? I believe it's No. 3 behind Callaway and then 13 Α. Keokuk and Osage. 14 15 Q. Well, if it's behind Callaway, Keokuk and 16 Osage, would it be No. 3? 17 Α. I think Keokuk and Osage are approximately the same. I believe Keokuk is probably the No. 1, Osage 18 following it, Callaway and then Labadie. 19 20 Do the costs upon which Ameren Missouri's Q. 21 retail rates are set include the costs Ameren Missouri 22 incurs for the electricity it provides to its customers? 23 Α. Yes. 24 And what is the aggregate capacity of all of Q. 25 Ameren Missouri's energy centers?

Page 101 It's about 10.5 gigawatts. 1 Α. 2 In your direct testimony near the bottom of Q. 3 page 2 and continuing on to page 3, you testify about 4 existing ponds or ash impoundments at the Labadie Energy 5 Center site and say that current estimates are that additional storage for coal combustion byproducts will 6 7 be needed by 2016. 8 Are coal combustion byproducts as you use the 9 terminology there the same thing as coal combustion 10 residuals? 11 Α. They are. 12 And does Ameren Missouri now incur 0. 13 transportation costs to move the coal combustion 14 residuals from its Labadie Energy Center into the 15 existing ponds at the Labadie Energy Center? 16 Α. No. 17 Ο. So it doesn't cost Ameren Missouri anything to move the coal combustion products from the boilers 18 19 into the ponds? Not specifically. The bottom ash and the fly 20 Α. 21 ash are wet sluiced from the boiler to the ponds. So there is no trucking sort to speak, that type of 22 23 transportation. 24 So whatever costs were the costs imbedded in 0. 25 the facilities that are used to transport it? Is that

Page 102 1 what you're saying? 2 Α. That's correct. 3 Q. Do transportation costs of moving coal combustion residuals increase the farther they are 4 5 transported? 6 Most certainly. Α. 7 Does Ameren Missouri have an estimate of how Q. 8 much additional coal combustion residuals it will create 9 if it installs a limestone-based wet flu gas 10 desulphurization system at its Labadie -- Labadie Energy Center? 11 We do. 12 Α. And how much would it be? What is that 13 Q. 14 estimate? 15 I think it's like 140,000 tons a year. Α. 16 How much does Ameren Missouri have invested Q. 17 in plant it uses to provide electrical service? 18 Α. I believe as of a year ago it was approximately 14 to 15 billion. 19 20 Q. Is that net of depreciation? 21 Α. Yes. Oh, excuse me. No, it's not net of -- net of 22 23 depreciation. 24 Q. Do you know what the amount is net of 25 depreciation?

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| 1 | A. It's 8 to 9 billion I believe. |
| 2 | Q. Total company, did Ameren Missouri have |
| 3 | approximately 3.5 billion in operating revenues during |
| 4 | calendar year 2013? |
| 5 | A. Correct. |
| 6 | Q. And that's electric and gas operations? |
| 7 | A. Yes. |
| 8 | Q. Total company, did Ameren Missouri have |
| 9 | approximately 803 million in operating income during |
| 10 | calendar year 2013? |
| 11 | A. Yes. |
| 12 | Q. Total company, did Ameren Missouri have |
| 13 | approximately 395 million in net income during calendar |
| 14 | year 2013? |
| 15 | A. Yes. |
| 16 | Q. How is it that Ameren Missouri intends to |
| 17 | fund construction of the proposed utility waste landfill |
| 18 | at Labadie? |
| 19 | A. I believe we're going to the plan is to |
| 20 | use funds out of our existing treasury. |
| 21 | Q. And what funds are available in that existing |
| 22 | treasury? |
| 23 | A. Well, it varies from time to time, but |
| 24 | generally we have approximately \$800 million in |
| 25 | revolving credit arrangement. |

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| 1 | MR. WILLIAMS: Judge, may I approach? |
| 2 | JUDGE WOODRUFF: You may. |
| 3 | BY MR. WILLIAMS: |
| 4 | Q. Mr. Giesmann, I'm handing you what's been |
| 5 | marked for identification as Staff Exhibit No. 105, |
| 6 | which is a copy of a Commission Order granting |
| 7 | application in File No. EF-2014-0094. Would you take a |
| 8 | look at that? |
| 9 | A. Okay. |
| 10 | Q. In your last answer you reference an \$800,000 |
| 11 | credit facility or credit agreement. Is that the |
| 12 | agreement that is referenced in that order? |
| 13 | A. I think it was 800 million. |
| 14 | Q. You're right. It's 800 million. I'm sorry. |
| 15 | A. Yes. |
| 16 | Q. That credit facility that you referenced in |
| 17 | your last answer is the credit facility that is the |
| 18 | subject of that order? |
| 19 | A. Correct. |
| 20 | Q. In your supplemental testimony that was filed |
| 21 | January 24th of this year and marked is marked as |
| 22 | Exhibit 4, on page 4 at lines 18 to 22 you testify that |
| 23 | the Missouri Department of Natural Resources had |
| 24 | indicated it expects to complete its review of Ameren |
| 25 | Missouri's construction permit application for the |

Page 105 1 Labadie utility waste landfill by May of this year and 2 that Ameren Missouri expected the construction permit to 3 be issued about June 1st of this year. 4 What is the current status of that permitting 5 process? 6 Α. That schedule is still on course. 7 Q. So you're still expecting the Missouri 8 Department of Natural Resources to issue the 9 construction permit by approximately June 1st of this 10 year? That's correct. 11 Α. 12 Q. Does Ameren Missouri agree that it would be 13 appropriate for the Commission to condition Ameren 14 Missouri's certificate of convenience and necessity for the Labadie utility waste landfill on the Missouri 15 16 Department of Natural Resources issuing to Ameren 17 Missouri both utility waste landfill construction and land disturbance permits for the construction of the 18 19 landfill before Ameren Missouri begins construction or 20 operation of the landfill? 21 Α. We do. MR. WILLIAMS: Judge, may I approach and 22 retrieve my exhibit? 23 2.4 JUDGE WOODRUFF: You may. 25 Do you wish to offer 105 at this point?

| | Page 106 |
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| 1 | MR. WILLIAMS: Judge, I've actually asked the |
| 2 | Commission to take notice of 105, in addition 106, which |
| 3 | is another Order of the Commission. I don't know if you |
| 4 | want to take that up now or not, but yes. |
| 5 | JUDGE WOODRUFF: Since we already have it as |
| 6 | a document here, is there any problem with just |
| 7 | admitting it as an exhibit? |
| 8 | MR. WILLIAMS: Not from my perspective. |
| 9 | JUDGE WOODRUFF: Anyone objecting to |
| 10 | Exhibit 105 into evidence? |
| 11 | Hearing no objection 105 will be received, |
| 12 | and we don't need to worry about taking administrative |
| 13 | notice of it. |
| 14 | (STAFF EXHIBIT NO. 105 WAS RECEIVED INTO |
| 15 | EVIDENCE.) |
| 16 | MR. WILLIAMS: Since I have a companion |
| 17 | order, I'll go ahead and offer Exhibit 106 too at this |
| 18 | time. |
| 19 | JUDGE WOODRUFF: Okay. And that was also |
| 20 | part of your motion for |
| 21 | MR. WILLIAMS: The Commission to take |
| 22 | notice |
| 23 | JUDGE WOODRUFF: to take notice? |
| 24 | MR. WILLIAMS: Yes. |
| 25 | JUDGE WOODRUFF: And that is an order |

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Page 107 granting authority to be issued and sell additional 1 2 long-term indebtedness of another 350 million? 3 MR. WILLIAMS: Yes. JUDGE WOODRUFF: Okay. Any objection to the 4 5 receipt of Exhibit 106? 6 Hearing no objections it will be received. 7 (STAFF EXHIBIT NO. 106 WAS RECEIVED INTO 8 EVIDENCE.) MR. WILLIAMS: Judge, I have no further 9 questions of this witness at this time. 10 JUDGE WOODRUFF: Okay. Then for Public 11 12 Counsel. 13 MR. MILLS: I have no questions. 14 JUDGE WOODRUFF: Sierra Club and LEO. 15 MS. LIPELES: Thank you. 16 Is it okay if I set up shop? 17 JUDGE WOODRUFF: As you prefer. CROSS-EXAMINATION BY MS. LIPELES: 18 19 Good morning, Mr. Giesmann. Q. 20 Α. Good morning. 21 I'm Maxine Lipeles. One of the counsel for Q. 22 the Intervenors, Labadie Environmental Organization and 23 Sierra Club. 24 How are you this morning? 25 Α. Good. Good to see you again.

Page 108 1 0. Thank you. Same here. 2 You first assumed responsibility for the 3 Labadie landfill project in 2011. Is that correct? Α. That's correct. 4 5 And for the five years before that you had Q. your hands full with the rebuild of the Taum Sauk 6 7 facility. Is that correct? 8 Α. I was the project manager for that, correct. 9 And so you were not personally involved in 0. 10 the decision to propose the utility waste landfill at 11 Labadie, were you? 12 Α. Initially? 13 Q. Right. 14 Α. No. 15 And you were not involved in the selection of Q. 16 the Labadie site for a utility waste landfill, were you? 17 Α. Until we went through the PSI and the DSI, I was not involved in that. Afterwards, when we decided 18 to continue on that path, I was. 19 20 Q. Okay. But you were not involved when Ameren 21 acquired the property beginning in 2007 and when it went to DNR in 2008, et cetera? 22 I was not. 23 Α. 24 Q. Okay. And you haven't been involved in the 25 design or siting of the Sioux landfill, have you?

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| 1 | A. The Sioux landfill now is comprised of two |
| 2 | two different landfills, one at the gypsum stack, which |
| 3 | was the original landfill, and the second is the fly ash |
| 4 | landfill. I was in the second but not in the first. |
| 5 | Q. For the second, though, the construction |
| 6 | application was filed in 2010, correct, and you were |
| 7 | still working on Taum Sauk at that point? |
| 8 | A. I was at Taum Sauk at that point. |
| 9 | Q. Okay. So you weren't involved you took |
| 10 | over responsibility but you weren't involved in the |
| 11 | initial design or the decision to put a landfill there |
| 12 | at Sioux? |
| 13 | A. I was not. |
| 14 | Q. Okay. And before you were assigned to this |
| 15 | project, you haven't worked on any other utility waste |
| 16 | landfills, have you? |
| 17 | A. I had not worked on any utility waste |
| 18 | landfills in the solid form. I have been involved with |
| 19 | the ash ponds at all of the Ameren Missouri facilities |
| 20 | prior to that. |
| 21 | Q. With from the dam safety perspective? |
| 22 | A. The dam safety group was formed as a result |
| 23 | of the Taum Sauk incident. So prior to that I did have |
| 24 | experience with reviewing the landfill or excuse |
| 25 | me the ash ponds, et cetera. In part of the design |

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|----|---|
| 1 | new things would crop up. We were involved with that. |
| 2 | Q. Okay. So the second ash pond was put in in |
| 3 | '93. So I assume you were not involved in that because |
| 4 | you hadn't yet graduated? |
| 5 | A. Actually I was an intern at Union Electric at |
| 6 | that time, and I was out there, I believe, right |
| 7 | thereafter or right right at the conclusion of |
| 8 | things. |
| 9 | Q. Okay. But you did not have responsibility |
| 10 | for the for the construction or siting or decision to |
| 11 | put the second ash pond at the Labadie site? |
| 12 | A. Correct. |
| 13 | Q. And when did you assume some responsibility |
| 14 | for the operation or maintenance or anything about the |
| 15 | ash ponds at the current plant site? |
| 16 | A. At Labadie? |
| 17 | Q. Right. |
| 18 | A. From time to time I was employed in the |
| 19 | civil instructional design group at Union Electric and |
| 20 | then eventually Ameren, and from time to time projects |
| 21 | would come up or questions would come up and arise from |
| 22 | various operations and we would go out and get assigned |
| 23 | to go look at things there. |
| 24 | Q. But you don't recall when you became |
| 25 | A. No. |

Page 111 1 0. Okay. Thanks. 2 Do you happen to have in front of you the CCN 3 application that Ameren filed in this case? Α. I do not. 4 5 Okay. Are you familiar with it? Q. 6 Α. I am. 7 Q. Okay. 8 MS. LIPELES: May I approach the witness? 9 JUDGE WOODRUFF: You may. 10 BY MS. LIPELES: 11 Mr. Giesmann, is this a copy of the Q. 12 application that Ameren filed in this proceeding for a certificate of public convenience and necessity? 13 14 Α. It is. 15 Could you please read paragraph 6 at the Q. bottom of page 3? 16 17 Α. In 2004 the Company began studying various alternatives to provide storage for future CCPs once the 18 existing ash ponds are filled to capacity, which is 19 expected to occur in early 2016. 20 21 The Company retained a consulting engineer, Reitz & Jens, in parentheses, to assist it. They 22 evaluated 22 sites across the region for construction of 23 a new utility waste landfill. 24 25 The Company also considered the option of

Page 112 transporting Labadie CCPs to a licensed landfill owned 1 2 and operated by a third party. 3 Q. Thank you. I would like to refer to your surrebuttal 4 5 testimony, the question and answer starting at page 13, line 20 and going to page 14, line 3. 6 7 Do you have that in front of you? I do. Give me a second to find it. Α. 8 9 0. This is the September 2013 surrebuttal. 10 Α. Okay. 11 And I'm sure you're capable of reading, but Q. 12 could you please read the question at the bottom of 13 page 13 and the answer at the top of page 14. 14 An issue was raised during the local public Α. 15 hearings regarding whether alternatives to constructing the UWL at the proposed site had been examined. 16 The 17 Commission also directed the parties to address the issue of whether there had been studies of alternative 18 sites and to provide any such information. Were 19 alternative sites studied? 20 21 The answer is, yes, they were. In fact, 22 disposing of the CCPs from the Labadie Energy Center was studied for 22 other sites in the region before the 23 24 decision was made to construct the utility waste landfill adjacent to the current Labadie footprint. 25

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| 1 | Q. Okay. And then the question after that is |
| 2 | please explain and then there's a fairly lengthy |
| 3 | paragraph, which I won't ask you to read, but I'd like |
| 4 | to put up on the display and go through some of the |
| 5 | items in this. |
| 6 | So I've highlighted what looks like four |
| 7 | items that you refer to as backup for your statement |
| 8 | that you looked at alternatives. |
| 9 | The first is what you refer to as a 2003 |
| 10 | study, Schedules 19 and 19A. That's the Reitz & Jens |
| 11 | study. Is that correct? |
| 12 | A. That's correct. |
| 13 | Q. And then the second is an internal evaluation |
| 14 | of third-party licensed landfills which is documented in |
| 15 | the spreadsheet, Schedule 20. Is that correct? |
| 16 | A. Correct. |
| 17 | Q. And then if you don't mind, just using a |
| 18 | verbal answer for the record. |
| 19 | A. Correct. |
| 20 | Q. Thank you. |
| 21 | A. You're welcome. |
| 22 | Q. And then the third is documentation received |
| 23 | from Fred Weber also regarding third-party landfill |
| 24 | costs. Is that correct? |
| 25 | A. Correct. |

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| 1 | Q. And then the fourth is Schedule 21, |
| 2 | PowerPoint presentation and site review matrix that |
| 3 | quote, that provide details of sites that were reviewed |
| 4 | as part of the study. Is that correct? |
| 5 | A. That's correct. |
| 6 | Q. Okay. Great. |
| 7 | And I'd like to now go through those |
| 8 | documents and I haven't been before the PSC before. |
| 9 | I don't want to I'm not exactly sure how to handle |
| 10 | the highly confidential documents, so when we get to |
| 11 | one, we'll deal with it. Most of the time I don't need |
| 12 | to be talking about numbers, and I don't know what makes |
| 13 | them highly confidential, so we can |
| 14 | JUDGE WOODRUFF: And just for your |
| 15 | information, what we'll do is we'll go in camera. |
| 16 | Anyone who has not been authorized to view highly |
| 17 | confidential documents will have to leave the room and |
| 18 | we'll stop the webcast. |
| 19 | MS. LIPELES: Okay. And does that go to any |
| 20 | discussion of the document? |
| 21 | JUDGE WOODRUFF: No. Only if you're getting |
| 22 | into highly confidential information from the document. |
| 23 | So, as you say, if you're not dealing with numbers, |
| 24 | you're probably okay. |
| 25 | But, again, if Ameren believes we're moving |

Page 115 into an area that should be highly confidential, just 1 2 tell us. 3 MS. LIPELES: Okay. MR. LOWERY: I think, Your Honor, it's the --4 5 I'm going to look at the schedule in a moment, but I 6 think it's the numbers that make them highly confidential. The witness can confirm that. 7 MS. LIPELES: Okay. But just to confirm, the 8 Reitz & Jens study itself is not highly confidential; 9 it's the Attachment A with the cost piece that is the 10 highly confidential piece, is that correct, just for the 11 12 first item? Is that correct? I'm sorry, Jim. Is that 13 14 correct? 15 MR. LOWERY: I -- I need to get the document up, if you'd bear with me just a second. 16 17 MS. LIPELES: Certainly. 18 MR. LOWERY: You're talking about 19 --19 MS. LIPELES: 19. 20 MR. LOWERY: -- 20 and 21? 21 MS. LIPELES: Right. I see that 20 and 21 are labeled HC and 21A 22 is labeled HC. I just wanted to confirm that 19 by 23 24 itself is not, which is what I'm going to start with. 25 MR. LOWERY: Yes. 19 is not highly

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 1
     confidential.
 2
                MS. LIPELES: Okay. Thank you.
 3
     BY MS. LIPELES:
                I'm going to be handing you some documents,
 4
        Q.
 5
     so I'll just leave them all with you and then collect
 6
     them all at the end if that's okay.
 7
              That would be fine.
         Α.
 8
         Q.
               So I'd like to direct your attention to
 9
     Schedule 19, the Reitz & Jens study. Do you have that
     in front of you?
10
11
        Α.
            I do not.
12
                MS. LIPELES: Okay.
13
               May I approach?
               JUDGE WOODRUFF: Yes, you may.
14
15
               We're having a little technical difficulty
16
    here.
17
                MS. LIPELES: I'm assuming everybody has the
     prefiled stuff; I don't have to give copies to
18
19
     everybody?
20
                MR. LOWERY: That's correct.
21
                JUDGE WOODRUFF: We're having a little
    trouble with the streaming is what we're trying to take
22
23
     care of here.
24
                MS. LIPELES: I appreciate it.
25
                (OFF THE RECORD.)
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Page 117 1 JUDGE WOODRUFF: Okay. We're streaming 2 again, so you can go ahead and proceed. 3 MS. LIPELES: Okay. Thank you very much. BY MS. LIPELES: 4 5 Q. Mr. Giesmann, before we start on this, I just want to ask you one more question with reference to your 6 7 sur-surrebuttal testimony of October 2013. Do you want me to find that? 8 Α. 9 ο. Pardon me? 10 Α. Do you want me to find that? 11 Yes, please. Q. 12 Α. Okay. 13 MS. LIPELES: So this is not functioning 14 right now? 15 JUDGE WOODRUFF: No. It is -- it's working 16 again now. I'm sorry. 17 MS. LIPELES: Do I have to do something? JUDGE WOODRUFF: No, you don't need to do 18 19 anything different. It's displaying over there. 20 MS. LIPELES: Great. Okay. 21 BY MS. LIPELES: 22 Q. Do you have it? 23 Α. I do. 24 On page 15, the question begins on -- the Q. question is -- I'm not going to ask you to read this 25

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| 1 | whole thing. I just want to put up some of the language |
| 2 | that is similar to some of the other language. |
| 3 | The bottom of page 14, there's a question |
| 4 | about alternatives. The suggestion was proposed that |
| 5 | Labadie is inferior to other possible sites. How do you |
| 6 | respond? And then I'd like to put up your response. |
| 7 | And so part of your response is in particular |
| 8 | to cost considerations, Ameren Missouri relied upon the |
| 9 | study of 22 alternative sites performed to evaluate the |
| 10 | potential cost of transporting CCPs off-site as opposed |
| 11 | to the cost of constructing and operating a UWL at the |
| 12 | facility itself. Is that correct? |
| 13 | A. That's correct. |
| 14 | Q. Thank you. |
| 15 | Now, the item that we're looking at now is |
| 16 | Schedule 19, which is part of what you what I've |
| 17 | labeled as the first of the four documents that you've |
| 18 | referenced in your surrebuttal testimony. |
| 19 | And there's also a reference in the CCN |
| 20 | application, paragraph 6 that you read, to evaluating |
| 21 | 22 sites and sur-surrebuttal testimony about evaluating |
| 22 | 22 sites. Is this Reitz & Jens study the study of |
| 23 | 22 sites that you're talking about? |
| 24 | A. No, I don't believe so. |
| 25 | Q. Thank you. |

Page 119 1 This Reitz & Jens report looks at generic 2 options for coal ash disposal but doesn't look at any 3 specific sites. Is that correct? Α. That's correct. 4 5 Q. And it only mentions Labadie when it's grouped together with other Ameren Missouri plants in 6 7 two locations, at the top of page 1 when it introduces 8 the names of the four Ameren coal plants and then on the 9 bottom of page 7 when it gives some ranges of cost 10 estimates for generic types of coal ash disposal facilities. Is that correct? 11 12 Α. That's correct. 13 Q. And this report does not mention any specific 14 sites or evaluate any specific sites for a potential 15 utility waste landfill? 16 Α. Correct. 17 Ο. And I'm not -- I don't think I even need to display the appendix, but let me give it to you so you 18 19 can answer. I don't think I need to ask any number 20 related questions. 21 MS. LIPELES: After the fact, may I approach 22 the witness? 23 Thank you. 2.4 JUDGE WOODRUFF: You certainly may. BY MS. LIPELES: 25

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| 1 | Q. Mr. Giesmann, there's the Schedule 19A, which |
| 2 | is an appendix to the Reitz & Jens report. It's |
| 3 | referred to as cost estimates. This also is looking at |
| 4 | generic disposal options. Correct? |
| 5 | A. That is correct. |
| 6 | Q. Okay. And the report itself is dated revised |
| 7 | June 2004, so I assume the 2003 reference in your was |
| 8 | when it was started and then it was revised in 2004, and |
| 9 | the cost estimates are also dated 2004. |
| 10 | And in this I think in the fall of this |
| 11 | year or of this fall of 2013 you went and updated the |
| 12 | costs that were in here. Is that correct? |
| 13 | A. We updated transportation costs I believe. |
| 14 | Well, they were at specific sites if I remember right, |
| 15 | not the generic ones. |
| 16 | Q. Okay. And okay. |
| 17 | A. As part of another submittal, one of the |
| 18 | highly confidential ones I believe. |
| 19 | Q. Okay. On the third-party landfills? |
| 20 | A. Correct. |
| 21 | Q. Okay. But not on the generic. |
| 22 | So these costs these are the last costs |
| 23 | that Ameren has, the costs from 2004 that are in Ex |
| 24 | that are in Schedules 21 and 20 I'm sorry |
| 25 | Schedules 19 and 19A? |

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| 1 | Α. | No. We updated the costs. |
| 2 | Q. | For the generic options I'm talking about. |
| 3 | Α. | Oh, sure. |
| 4 | Q. | That's what |
| 5 | Α. | Anything generic. |
| 6 | Q. | Okay. |
| 7 | Α. | This was done independently and then later on |
| 8 | we looked | at specific sites, which is the highly |
| 9 | confident | ial ones. |
| 10 | Q. | Okay. But what you |
| 11 | Α. | And then those were updated I believe. |
| 12 | Q. | Well, you updated the third-party costs? |
| 13 | Α. | Right. |
| 14 | Q. | The costs of disposing at a third-party |
| 15 | landfill? | |
| 16 | Α. | Correct. |
| 17 | Q. | Did you update costs of the sites that you |
| 18 | looked at | for Ameren building a UWL someplace else? |
| 19 | | We'll be getting to that document. That's |
| 20 | the Powerl | Point presentation and site review matrix I |
| 21 | believe. | |
| 22 | Α. | Okay. |
| 23 | Q. | I didn't see an update to that. I just |
| 24 | Α. | No. No. |
| 25 | Q. | wanted to make sure we're talking about |

Page 122 1 the same things. 2 Α. That's correct. 3 Q. Okay. Great. Thank you. 4 Okay. I'm going to come back to Items 2 and 5 3 in your sur-sur-- in your surrebuttal testimony that's displayed that you read before, and let's look at 6 7 Item 4, because I think it's related to Item 1 and 8 Items 2 and 3 are related to each other. 9 So Items 1 and 4 relate to Ameren building 10 its own utility waste landfill whether on-site or 11 someplace else, and -- and Items 2 and 3 relate to the 12 sending waste to a third-party landfill that somebody 13 else is owning and operating. Correct? 14 Α. Correct. 15 Q. Okay. And we just looked at Item 1, the 16 Reitz & Jens report, and that's not an evaluation of 17 22 sites. That just looks generically at the disposal options for utility waste. 18 19 Α. Correct. 20 So now I'd like to ask you about Item 4, Q. 21 which is Schedule 20. 22 I'm sorry. I'm having trouble with my 23 numbers today. Schedule 21. 24 MS. LIPELES: May I approach the witness? 25 JUDGE WOODRUFF: You may.

Page 123 1 MS. LIPELES: Thank you. 2 BY MS. LIPELES: 3 Q. Mr. Giesmann, I've just given you a copy of your Schedule 21, which is a PowerPoint presentation. 4 5 It's a highly confidential document. 6 MS. LIPELES: And I won't be displaying it or 7 reading the numbers, so I think we can discuss it, but if I -- if I get in any sensitive territory, please let 8 9 me know, Ameren. 10 MR. LOWERY: Yeah. And I would ask, Mr. Giesmann may have to 11 12 identify some -- whether some of this information is 13 highly confidential or not. I'm sure the numbers are. There may be some others. 14 15 But, Mr. Giesmann, please feel free step in because I don't -- I'm not as familiar as you. 16 17 THE WITNESS: Certainly the numbers are, and I would also venture to say that the names, specific 18 names, you know, sites or anything like that would be 19 confidential as well. 20 21 MS. LIPELES: Okay. BY MS. LIPELES: 22 23 Is this the study of 22 -- is Schedule 21 the Q. 24 study of 22 sites that Ameren referenced in the CCN 25 application and that you referenced in your surrebuttal

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Page 124 and sur-surrebuttal testimonies? 1 2 Α. It is the results presented by Reitz & Jens. 3 Q. Is there any other study of the 22 sites? No, not to my knowledge. 4 Α. 5 Q. Thank you. 6 MS. LIPELES: Excuse me. I'm just looking. 7 Oh, here it is. 8 May I approach the witness? 9 JUDGE WOODRUFF: You may. 10 MS. LIPELES: I'd like this marked as an exhibit, please. 11 12 What's our next number? 13 340. 14 And this is response to Data Request No. 8. 15 If anybody needs a copy, we have copies. 16 MR. MILLS: I'd like a copy. 17 MS. LIPELES: Would you bring copies to everybody, please. 18 19 JUDGE WOODRUFF: We'll need copies for the bench also. 20 21 MS. LIPELES: Okay. Great. Thank you. I apologize. It's my time for technical 22 23 difficulties. 24 JUDGE WOODRUFF: That's all right. 25 MS. LIPELES: Okay.

Page 125 This is a highly confidential document. 1 Ι 2 won't be asking questions involving numbers from this 3 document. JUDGE WOODRUFF: Okay. 4 5 MS. LIPELES: May I approach the bench? 6 JUDGE WOODRUFF: You may. 7 And this will be No. 340HC. MS. LIPELES: Yes. 8 (INTERVENORS' EXHIBIT NO. 340HC WAS MARKED 9 FOR IDENTIFICATION BY THE COURT REPORTER.) 10 BY MS. LIPELES: 11 12 Mr. Giesmann, you have in front of you what's Q. 13 been marked as Exhibit 340. It's your response to a 14 data request from Staff Data Request No. 8. Is that 15 correct? Α. 16 Correct. 17 Q. And in response to Question 3 on the second page -- or sorry. Let's go back. 18 19 Question 3 is list all options and site 20 locations for each plant on a separate basis that Ameren 21 Missouri has investigated as possible future coal 22 combustion product storage sites for Meramec, Sioux and Rush Island. Correct? 23 24 A. Correct. 25 And in response you said, please refer to the Q.

Page 126 1 response and associated study report for Staff Data 2 Request 2. 3 And I believe that all of the documents that we've -- that I've numbered 1 through 4 are documents 4 5 that you provided to Staff in response to Data Request No. 2, but can you confirm that? 6 7 Α. That sounds correct. 8 Q. And then you also add, Ameren Missouri 9 engineers reviewed possible sites south of the St. Louis 10 metropolitan area for combined Rush Island and Meramec 11 UWL. And then I'm going to skip the next two sentences 12 as part of -- discussing part of what was done. 13 And then it says, the site screening 14 information was documented on the attached spreadsheet, 15 although the spreadsheet refers primarily to Rush Island, the listed sites were reviewed for potential UWL 16 17 for both Meramec and Rush Island. Is that correct? 18 Α. Correct. 19 And the spreadsheet which is attached to --Q. 20 and I won't display it because it's highly 21 confidential -- that's attached to this says Rush Island 22 on the top. It's very small print but I'm happy to --23 MS. LIPELES: If I may approach. 24 -- happy to share this little device with anybody. I have a magnifier if you want to look at it. 25

Page 127 THE WITNESS: You're correct. 1 2 BY MS. LIPELES: 3 Q. And also the date. Do you want me to --4 Α. 5 Q. Why don't you hold on to that. 6 The document says Rush Island at the top left 7 in print that only very young eyes can read. My eyes were younger at one point in time and 8 Α. 9 glasses are in my future. 10 Q. And on the bottom left it's dated June 13th, 2008. Is that correct? 11 12 Α. Correct. 13 Q. Okay. And then there's a map attached on the 14 back of the spreadsheet and the map has the Meramec plant and the Rush Island plant in red, and then in blue 15 it has a number of other sites -- I think they add up to 16 17 21 but I'll concede 22 if you say it's 22 -- that are in Is that correct? blue. 18 19 Α. Correct. 20 And is this spreadsheet and map that's Q. 21 attached to your response to Data Request No. 8, which 22 is now Exhibit -- or has been marked as Exhibit 340, is 23 that the same matrix and map that appear in your Schedule 21? 24 25 And the matrix and the map are the last two

Page 128 1 pages of the schedule if that helps you. 2 Α. Yes. MS. LIPELES: Thank you. 3 I'd like to move the introduction of 4 5 Exhibit 340 into evidence, please. 6 JUDGE WOODRUFF: All right. 340HC has been 7 offered. 8 Any objections to its receipt? 9 Hearing none it will be received. (INTERVENORS' EXHIBIT NO. 340HC WAS RECEIVED 10 INTO EVIDENCE.) 11 12 BY MS. LIPELES: 13 Q. Now I'd like to go through Schedule 21, 14 please, and this is the PowerPoint presentation and site review matrix to what I've highlighted as No. 4 on your 15 16 answer. 17 And the site review matrix I think we just discussed was -- is that second -- is the document on 18 the second-to-last page that says Rush Island on the 19 20 top. Is that correct? 21 Α. Correct. 22 Q. Thank you. 23 On the same map also -- the same map I think 24 appears about three times, on page 3, on page 7 and the 25 very last page, and every time it appears it has

Page 129 1 Meramec -- the Meramec plant and the Rush Island plant 2 in red and a number of sites, roughly 22, in blue. 3 Correct? Correct. Α. 4 5 When -- and you just -- your data request Q. indicates that this was done with respect to Meramec and 6 7 Rush Island, but let's look at the text also which 8 confirms that. 9 On the list of sites eliminated, I will avoid 10 using names. 11 Can I use just the first letter of the site? 12 Α. That's fine with me. 13 Q. Okay. So the first site eliminated starts 14 with a K. 15 Where are you reading from? Α. 16 Q. I'm sorry. It's on one, two, three, four --17 it's on the fourth page and it's the first page that says sites eliminated. 18 19 Α. Okay. 20 MS. LIPELES: Would you like copies? 21 JUDGE WOODRUFF: Prefiled I assume? 22 MS. LIPELES: Yes. 23 JUDGE WOODRUFF: Commissioners, I assume you 24 can look it up. 25 MS. LIPELES: Okay.

Page 130 BY MS. LIPELES: 1 2 Under the site that begins with the letter K, Q. 3 it locates it as being 107--100-- as being -- it tells 4 the size and then it says immediately west of RI plant. 5 Correct? 6 Α. Correct. 7 Q. And I assume that's the Rush Island plant? 8 Α. Correct. 9 And then the next site as well. So it's the 0. 10 second of three sites on this page. It also locates it as immediately north of RI plant, and that's the Rush 11 12 Island plant, and the third -- the third -- the third 13 site on this page is 100-- is -- tells the acreage west 14 of RI plant. Correct? 15 (Nods head.) Correct. Α. 16 Q. And then on the following page it sites 17 eliminated continued, if you can look at that. The second group -- the first site apparently 18 19 is not a -- it says corporate decision not to pursue, so 20 we won't even discuss that. It's on the list but it 21 wasn't something really in consideration. 22 Α. Correct. 23 And then there's a group of three sites, and Q. the third bullet under those three sites is 24 25 approximately 13 to 17 miles from the plant.

Page 131 1 In looking at the map I think it's clear that 2 the plant there is the Rush Island plant. Is that 3 correct? Α. 4 Correct. 5 Q. And then the last site was in Kentucky, and it's apparently south of the Rush Island plant according 6 7 to the map? 8 Α. Correct. 9 The next page that lists potential sites has Q. six sites listed under utility waste landfill and then 10 another site listed under ches-- under beneficial use. 11 12 Correct? 13 Α. Correct. 14 Q. And for the six sites for utility waste 15 landfill, the last bullet is Labadie Regional. 16 Is there any other place in this matrix -- in 17 this PowerPoint presentation or matrix where Labadie -the name Labadie appears? 18 19 Α. I don't believe so. 20 Q. And there's no evaluation of the Labadie 21 Regional site, is there? 22 In this particular? Α. 23 Q. Right. 24 Α. No. 25 Okay. But all of the other items on this, Q.

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| 1 | except for the very first one, Rush Island ash pond, all |
| 2 | of the others, which I assume is not confidential since |
| 3 | you have an active proposal for that, is all of the |
| 4 | other sites there are four other sites. You then go |
| 5 | through this matrix presentation then goes through |
| 6 | and looks at strengths, weaknesses, risks associated |
| 7 | with each of the sites and has potential cost dollars, |
| 8 | but all of them say dollar sign XX.XX per ton estimated |
| 9 | disposal cost. |
| 10 | So at least on this highly confidential |
| 11 | version that I have it doesn't have actual costs. Is |
| 12 | that correct? |
| 13 | A. Correct, right. |
| 14 | Q. Okay. So going through some of these sites. |
| 15 | The first one that is evaluated, the name |
| 16 | starts with an S. It's described as 1.7 miles, |
| 17 | 5.5 miles driving distance from the plant, and it's |
| 18 | it's clear from its location in the map that that's the |
| 19 | Rush Island plant. Correct? |
| 20 | A. Correct. |
| 21 | Q. The next site and there's a map of that |
| 22 | site, two maps, and then you get to another site that |
| 23 | starts with a K, two names, the first starts with a K, |
| 24 | and it's 6.4 miles from the plant. |
| 25 | And, again, from the map and the location you |

Page 133 1 can tell that this is the Rush Island plant. Correct? 2 Α. Correct. 3 Q. And under weaknesses it notes jurisdictional and floodplain areas. Correct? 4 5 Α. Correct. 6 Okay. And the Labadie site is also in a Q. 7 floodplain area, is it not? It is. 8 Α. 9 Q. And then the next site, it's a few pages down after a couple of maps, is the Rush -- is 2.5 miles from 10 the plant? 11 12 Α. Correct. 13 Q. And that also is the Rush Island plant? 14 Correct. Α. And under weaknesses it says higher property 15 Q. values and public opposition and also says 16 17 jurisdictional and floodplain areas. Correct? 18 Α. Correct. 19 Okay. And Labadie has public opposition I Q. 20 think you'll agree? 21 Α. I do. 22 Q. And Labadie is in a floodplain area? 23 It is. Α. 24 Q. The next site after the next couple maps is 25 another site. It starts with an F.

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| 1 | Under weaknesses it says access separated |
| 2 | from plant by Mississippi River. So this is on the |
| 3 | other side of the Mississippi River from the Rush Island |
| 4 | plant. Correct? |
| 5 | A. Correct. |
| 6 | Q. And also under weaknesses it includes |
| 7 | entirely in 100-year floodplain, parens, partial levy |
| 8 | protection, parens. Is that correct? |
| 9 | A. I'm sorry. Say that one more time. |
| 10 | Q. The second bullet under weaknesses, entirely |
| 11 | in 100-year floodplain and then in parens it says |
| 12 | partial levy protection? |
| 13 | A. Correct. |
| 14 | Q. Okay. And the same can be said of the |
| 15 | Labadie site. Correct? |
| 16 | It's a different floodplain. It's the |
| 17 | Missouri River as opposed to the Mississippi River but |
| 18 | it's entirely in a 100-year floodplain |
| 19 | A. Correct. Correct. |
| 20 | Q currently with partial levy protection? |
| 21 | A. Correct. |
| 22 | Q. And finally the last site that is discussed |
| 23 | in this PowerPoint presentation, Item No. 4 in your |
| 24 | surrebuttal testimony, is the one that was listed under |
| 25 | beneficial use, but let's go through it as well. |

Page 135 1 Under strengths the last bullet is proximity 2 to Meramec plant. Correct? 3 Α. Correct. 4 Q. And under weaknesses, distance access from 5 Rush Island. Correct? 6 Α. Correct. 7 Okay. So just to be clear, this is the study Q. 8 of the 22 sites that we just looked at, Schedule 21? 9 Α. Correct. 10 And it mentions Labadie in one place on a Q. list? 11 12 Α. Correct. 13 Q. Okay. Now I'd like to discuss the Items 2 14 and 3 from your surrebuttal testimony that I've 15 highlighted, page 14 of your surrebuttal testimony, Items 2 and 3, that both relate to options for sending 16 17 coal ash waste to a third-party landfill. 18 Okay. 19 Α. Items 1 and 4 I think we established relate to options for building -- for Ameren building its own 20 21 landfill and Items 2 and 3 relate to Ameren sending the land-- the waste to somebody else's landfill. Is that 22 correct? 23 That's correct. 24 Α. 25 So Schedule 20HC is your spreadsheet Q.

Page 136 1 regarding existing third-party landfills but for 2 potential disposal of CCPs. Correct? 3 Α. Correct. 4 MS. LIPELES: Okay. 5 May I approach the witness? 6 JUDGE WOODRUFF: You may. 7 MS. LIPELES: Does anybody else need a copy of this, 20? 8 BY MS. LIPELES: 9 Mr. Giesmann, I've handed you Schedule 20 HC. 10 Q. I will not mention numbers and I will not mention names 11 12 if that's -- if you want me to not mention names on 13 this. 14 Α. Correct. 15 Q. Okay. So this list -- it's a one-page 16 spreadsheet. Is that correct? 17 Α. Correct. 18 And it lists six third-party landfills. Q. Is 19 that correct? 20 Α. Yes. 21 And the first three are really not even Q. 22 viable options to consider because the first one says 23 will accept only construction debris. Correct? 2.4 In 2003 that was the case I believe. Α. 25 Again, I didn't -- I didn't author this, but

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| 1 | this is dated as of $9-25-2003$. It does have that note |
| 2 | on there, so I can't speak to that. However, if it |
| 3 | included it, there must have been some good reason for |
| 4 | doing that. |
| 5 | Q. Okay. But this is what you included as |
| 6 | support for your evaluation of third-party landfills? |
| 7 | A. That's correct. |
| 8 | Q. And the second on this list of six said |
| 9 | closing next month, and as you said, this was dated in |
| 10 | September of 2003, so that really wasn't a viable |
| 11 | option? |
| 12 | A. Well, I don't know that for certain. What I |
| 13 | do know is that sometimes they'll open one particular |
| 14 | cell or phase and then that will close and then there is |
| 15 | some time to open up the next phase, so it could have |
| 16 | been in a situation like that. |
| 17 | Q. Well, just to address that I was going to |
| 18 | get to this later, but you filed a Schedule 22, which is |
| 19 | a highly confidential document involving revenue |
| 20 | requirements, and attached to it you had an updated |
| 21 | version of this spreadsheet, updated September 2013. |
| 22 | Correct? |
| 23 | A. Correct. |
| 24 | Q. Okay. Should I give you a copy of this? |
| 25 | A. Yes. |

Page 138 1 MS. LIPELES: May I approach the witness? 2 JUDGE WOODRUFF: You may. 3 MS. LIPELES: Thank you. BY MS. LIPELES: 4 5 And I've turned it to the page of the updated Q. 6 spreadsheet. 7 So the last two pages of your Schedule 22, 8 highly confidential, is an updated version of the 9 spreadsheet and makes clear that the first landfill that 10 said will accept only construction debris is actually no 11 longer in business; it closed in 2011? 12 Α. Correct. 13 Q. The second one which said closing next month on the older spreadsheet says closed. Correct? 14 15 Α. Correct. 16 The third one is also the same and it said Q. 17 only 35 acres before and now it is not only 35 acres but also no longer in business. Correct? 18 Correct. 19 Α. 20 The fourth one on here is a new one, fourth Q. 21 and fifth, except the fifth is a new one on here but it 22 says no longer in bu-- oh, I'm sorry. It must have a 23 different owner. The -- the -- the name, the location of it seems to be the same. 24 25 Α. What it is, on there it says no longer in

Page 139 business is the trucking company. 1 2 Q. Okay. Does that make sense to you? 3 Α. 4 Q. Okay. Yes. 5 And then -- and so of the -- of the ones that you listed on this original spreadsheet, two of the 6 7 facilities were closed and one is too small to -- to be 8 viable for the Labadie coal ash waste. Correct? 9 The first -- the first two on both lists are now closed? 10 Correct. 11 Α. 12 And the third is 35 acres, which is, I'm Q. 13 assuming, not big enough since the proposal you have at Labadie is for 166 acres? 14 15 Α. Correct. 16 Q. And so then you have -- in the old one you 17 have three other landfills and you have the names of them and you have trucking companies and what it would 18 cost to truck in a per ton disposal fee. 19 20 But there is no discussion of any of these 21 sites and whether they're suitable for utility waste, 22 are they -- is there? 23 Α. There is no documentation to my -- to my knowledge. However, our fossil fuels group I do believe 24 did make contact with these third-party landfills and 25

Page 140 I'm certain would have asked that question. 1 2 But that's your supposition. Correct? Q. 3 Α. It is. And there is no documentation of it? 4 Q. 5 Α. (Shakes head.) 6 And is there any documentation of the Q. 7 potential risks or liabilities for Ameren or its 8 ratepayers associated with any of these third-party 9 landfills that are listed on your one-page spreadsheet? 10 There is no documentation to my knowledge Α. 11 especially that has been put into evidence in this case. 12 However, I do know that in some cases we have placed ash 13 in third-party landfills in the past. 14 Q. Okay. But there is no documentation of that evaluation in this case? 15 16 Α. That's correct. 17 Q. And then Item No. 4 -- I'm sorry. Item No. 3. It doesn't have a schedule name. I think it's 18 attached to Item 20 HC. Oh, no. It was attached to --19 20 I'm sorry. It's attached to your response to Staff Data 21 Request No. 2. 22 It's the -- Item No. 3 is documentation 23 received from Fred Weber also with respect to 24 third-party landfill costs. Correct? 25 Α. Correct.

Page 141 MS. LIPELES: May I approach? 1 2 JUDGE WOODRUFF: You may. 3 MS. LIPELES: Thank you. I guess, can I mark this, please? 4 5 I guess this would be 341. (INTERVENORS' EXHIBIT NO. 341HC WAS MARKED 6 7 FOR IDENTIFICATION BY THE COURT REPORTER.) MS. LIPELES: Excuse me, please. 8 9 If I may approach. 10 JUDGE WOODRUFF: Sure. And this will be 341 HC? 11 12 MS. LIPELES: Yes. 13 JUDGE WOODRUFF: Okay. 14 MS. LIPELES: Most of the documents in here 15 are schedules. 16 JUDGE WOODRUFF: Okay. 17 Now, are you offering -- offering this entire group -- package of documents? 18 19 You're referring us to a specific page here. MS. LIPELES: Yes. And it's the -- he 20 21 included his response to Data Request No. 2, the -- the content of it for this e-mail in this sche-- in this --22 23 JUDGE WOODRUFF: So the entire package of documents is the exhibit? 24 25 MS. LIPELES: Yes.

Page 142 1 JUDGE WOODRUFF: Okay. That's fine. 2 MS. LIPELES: I think -- I think it's near 3 that way. Most of the other materials are part of schedules that are part of his prefiled testimony, so 4 5 there will be duplicates, but rather than take something out of context I just submitted it as an entire exhibit, 6 7 yes. 8 MR. LOWERY: Thank you. MS. LIPELES: I apologize for the delay. 9 10 JUDGE WOODRUFF: No problem. 11 MR. LOWERY: And, Your Honor, as a point of 12 clarification, if memory serves me, we initially failed to designate this as HC and then we had indicated to 13 counsel in a later communication that we should have and 14 that it should have been treated as HC. 15 16 I believe this is the one, which is why it 17 doesn't say HC on it. 18 JUDGE WOODRUFF: Okay. 19 MS. LIPELES: But it's been marked now as HC. 20 Oh, actually I didn't give -- excuse me. Why 21 don't I substitute this full packet for the one that was previously marked, which was just the e-mail. 22 23 JUDGE WOODRUFF: Okay. THE COURT REPORTER: So this --24 25 MS. LIPELES: So this would be 341 HC.

Page 143 (INTERVENORS' EXHIBIT NO. 341HC WAS REMARKED 1 2 FOR IDENTIFICATION BY THE COURT REPORTER.) 3 MS. LIPELES: I'm just referring to one particular page out of a number of documents. 4 5 JUDGE WOODRUFF: Right. But the entire group of documents is the exhibit? 6 7 MS. LIPELES: Yes. BY MS. LIPELES: 8 9 Mr. Giesmann, referring to the e-mail that is 0. part of what's been marked as Exhibit 341HC, it's an 10 11 e-mail of August 18th, 2010 from Ameren's consultant, 12 Reitz & Jens, to an individual at Fred Weber, and their 13 response. Is that correct? 14 This is -- this is part of Data Request Α. MPSC 0002. 15 16 Q. Yes. And you can see the full document 17 there. It comes, I think, right after the PowerPoint 18 presentation. 19 Correct. It's referred to in Question No. 1, Α. and then Question No. 2 is also with regard to that. 20 21 Q. Okay. And you're talking about the e-mail itself? 22 Α. 23 Q. I'm talking about the e-mail. 24 And is this -- is this e-mail the -- the 25 doc-- and going back to your surrebuttal testimony, you

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| 1 | mentioned documentation received from Fred Weber, a |
| 2 | local contractor who owned and operated several |
| 3 | landfills at the time, that further demonstrated the |
| 4 | approximate disposal cost for Labadie CCPs. |
| 5 | And this is the only Fred Weber documentation |
| 6 | I found in the documents. I wanted to confirm that this |
| 7 | is what you're talking about. |
| 8 | It's this e-mail exchange that's part of |
| 9 | what's been marked as Exhibit 341HC? |
| 10 | A. Yes. |
| 11 | Q. Okay. And it mentions a disposal fee and it |
| 12 | mentions costs for trucking and also mentions rail |
| 13 | rates. Correct? |
| 14 | A. Correct. |
| 15 | Q. Okay. |
| 16 | A. I should point out, though, as a point of |
| 17 | clarification, these were as I understand it, these |
| 18 | rail rates are generic in nature. There is no rail |
| 19 | facilities for loading or unloading. |
| 20 | Q. Okay. So all of the information in this |
| 21 | No. 3 is generic? |
| 22 | A. You're talking about the e-mail itself or |
| 23 | Q. Well, all of the information regarding third- |
| 24 | party landfills was generic, wasn't it? |
| 25 | A. No. No, no, no. There were specifics. |

Page 145 1 0. Okay. But you didn't evaluate the 2 suitability of any of those sites? 3 Α. Assuming that they would -- would take -again, once I -- previously I said that our fossil fuels 4 5 plant had contacted them to get the dollar and cents. 6 So certainly they would have known that 7 Ameren Missouri was trying to dispose of its coal ash 8 there. 9 Q. Okay. But it --10 So it's the same thing with this. Α. 11 Okay. Q. 12 Α. The only difference. 13 Q. Okay. And this -- and this is the extent 14 of the documentation from Fred Weber, this e-mail 15 exchange --16 Α. Correct. 17 Q. -- that is part of Exhibit 341HC? 18 Α. Correct. 19 MS. LIPELES: Okay. I'd like to move 20 Exhibit 341HC into evidence. 21 JUDGE WOODRUFF: 341HC has been offered. 22 Any objections to its receipt? 23 Hearing none it will be received. (INTERVENORS' EXHIBIT NO. 341HC WAS RECEIVED 24 25 INTO EVIDENCE.)

Page 146 BY MS. LIPELES: 1 2 Mr. Giesmann, I realize you weren't involved Q. 3 at the time, but Ameren started acquiring the land for 4 the proposed Labadie landfill site in 2007. Is that 5 correct? 6 Α. I believe so. 7 And by December 2008 when Ameren submitted Q. 8 its request to the Missouri Department of Natural 9 Resources for a preliminary site investigation, and at 10 that point it was for an area encompassing over a 11 thousand acres, some subpart of that would be proposed 12 for a utility waste landfill, Ameren stated that, quote, 13 it either currently owns or has a verbal agreement to 14 purchase all of the land within the PSI limits by 15 February 27, 2009. 16 And that -- that's -- I'm quoting from your 17 Schedule 8, page 1, your request to the Department of Natural Resources for a preliminary site investigation. 18 19 Is that correct? 20 Α. That's correct. 21 And in May 2009 Ameren submitted to the Q. 22 Department of Natural Resources a work plan for a 23 detailed site investigation on 400 acres of that land. 24 Correct? 25 That's correct. Α.

Page 147 1 0. In April 2010 Ameren submitted proposed 2 zoning changes to Franklin County to allow a utility 3 waste landfill next to the Labadie plant. Correct? Α. That's correct. 4 5 I should also probably point out that while all this were ongoing, these other studies were -- were 6 7 continuing in the event that things did not work out for the Labadie landfill. 8 9 Obviously it was the closest site to the plant, right next to Labadie, was a good choice, should 10 be able to be properly permitted, et cetera. 11 12 But in the event that it didn't, these other 13 sites -- as Labadie was discussed earlier, it was initially thought of as being a regional landfill 14 15 itself, accepting ash from other plants. But should things have gone badly and we 16 17 found something a fatal flaw, for example, in the engineering design or permitting process, then these 18 other sites that were discussed and had the names of 19 Rush Island and the distances, et cetera, would have 20 21 been utilized, were the third parties. 22 0. So Ameren had decided that its preference was 23 the regional landfill at Labadie and it looked at the 24 other sites that are mentioned in Schedules -- in 25 Schedule 21 as a backup for ash from Meramec and

Page 148 Rush Island? 1 2 Α. Well, for all of them I believe, so Meramec 3 as well. Sioux was already in the permitting phases. Right. But when you say all of them, you 4 Q. 5 previously said -- and I think you said that that was correct -- from Meramec and Rush Island, and those are 6 7 the only two plants mentioned in that Schedule 21? 8 Α. Because at that point we had already appeared 9 to have a good site for Labadie. 10 Q. You had already committed to the Labadie site 11 and you were looking as a backup for Rush Island and 12 Meramec? 13 Α. And Labadie, should things go incorrectly or, you know, if there was a fatal flaw in the engineering 14 15 or permitting process. 16 Just like we had talked about having Labadie 17 as a regional landfill for Meramec and Rush Island, the same thing would have applied for -- if the facility at 18 Labadie, the proposed site utility waste landfill there, 19 would have gone -- something would have precluded us, we 20 21 would have used all these other sites to then transport ash to those. 22 23 0. I understand that's what you're saying right 24 now, but I don't think that's what you said in response 25 to the data request that we just looked at before.

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Page 149 1 Α. Okay. 2 In response to Data Request No. 8, which is, Q. 3 I think, Exhibit 340. MS. LIPELES: Is that correct? 4 5 JUDGE WOODRUFF: That's correct. BY MS. LIPELES: 6 7 Okay. In response to Question 3 you were Q. 8 asked for other op-- list other options for the other 9 plants, and you made it clear that the PowerPoint 10 presentation and site review matrix were -- although the 11 spreadsheet refers primarily to Rush Island, the listed 12 sites were evaluated for potential UWL for both Meramec 13 and Rush Island. This was filed in this case. You made no mention of Labadie. Correct? 14 15 If you read the question, it doesn't ask for Α. Labadie. So we had to answer the question. 16 17 Ο. Okay. And there is no document anywhere in this case that indicates that you looked at any of these 18 22 sites in the Schedule 21 for Labadie? 19 20 Α. Sure it does. The site -- the presentation 21 that you gave to us showed Labadie as a site. 22 0. Okay. So you have two words in there. There 23 is one bullet and it's two words, and it says Labadie 24 Regional, and that was your evaluation of the Labadie 25 site?

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| 1 | A. As I testified earlier, Labadie, we had a | |
| 2 | pretty good idea that it was permittable and the | |
| 3 | property was able to be acquired, and so no doubt we | |
| 4 | focused our efforts on providing a site for Meramec and | |
| 5 | Rush Island. | |
| 6 | So again, there was no need to expand upon | |
| 7 | things at that point. Should things once once we | |
| 8 | found something that would not have been correct or | |
| 9 | permittable or a problem with the design, we would have | |
| 10 | expanded that stuff in here. | |
| 11 | Q. I'm not saying a decision wasn't made. It's | |
| 12 | obvious a decision was made and and Ameren is going | |
| 13 | forward with the proposal for the Labadie plant. I'm | |
| 14 | just saying there is no documentation of that decision | |
| 15 | evaluating the pros and cons of the Labadie site for | |
| 16 | disposal of Labadie waste. | |
| 17 | A. Correct. | |
| 18 | Q. Thank you. | |
| 19 | Excuse me. I'm sorry. | |
| 20 | Mr. Giesmann, I'd like you to take a look at | |
| 21 | the your verbal response to Data Request No. 2, which | ı |
| 22 | has now been submitted as Exhibit 341, and here the | |
| 23 | question is provide a copy of all supporting | |
| 24 | documentation Ameren Missouri relied upon to determine | |
| 25 | that, quote, the best option which minimized cost, as | |

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| 1 | well as environmental and land use impacts, was a |
| 2 | construction of a company-owned landfill on land |
| 3 | adjacent to the current land occupied by the Labadie |
| 4 | Energy Center, close quote. Include all studies that |
| 5 | have been performed. |
| 6 | And your response was, it should be noted |
| 7 | that Ameren Missouri did not review CCP disposal options |
| 8 | for the Labadie Energy Center alone but rather took a |
| 9 | holistic review of the disposal needs of all of the |
| 10 | Ameren Missouri coal-fired power plants. |
| 11 | Is that correct? |
| 12 | A. That's correct. |
| 13 | Q. And the only studies that you refer to are |
| 14 | the ones that we've already gone over? |
| 15 | A. Correct. |
| 16 | MS. LIPELES: Excuse me. I just need more |
| 17 | copies of another data request, 2.3. |
| 18 | Oh, okay. I've got it. Sorry. |
| 19 | I'd like this marked as Exhibit 341. |
| 20 | THE WITNESS: You already have |
| 21 | THE COURT REPORTER: We have 341HC. |
| 22 | JUDGE WOODRUFF: This would be 342. |
| 23 | MS. LIPELES: Oh. Okay. Then sorry. It's |
| 24 | the wrong one. |
| 25 | Oh, here it is. |

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Page 152 I'd like this marked, please, as Exhibit 342. 1 2 THE WITNESS: I've got two of these 341. One 3 is the packet -- you should probably take this back. MS. LIPELES: Okay. Thank you. 4 5 Is this highly confidential? MR. LOWERY: I believe it is -- no, it is 6 7 not. (INTERVENORS' EXHIBIT NO. 342 WAS MARKED FOR 8 IDENTIFICATION BY THE COURT REPORTER.) 9 10 BY MS. LIPELES: 11 Mr. Giesmann, what's been marked as Q. 12 Exhibit 341 -- 342 is your response to Staff Data 13 Request 2.3. Correct? 14 Α. Correct. 15 And the question is, did Ameren reconsider a Q. 16 regional landfill to dispose of CCPs from Labadie, 17 Sioux, Rush Island and Meramec in another county after Franklin County adopted land use ordinances? 18 19 And then there's an additional question --20 two additional questions, and you answer each of them in 21 a separate paragraph. 22 And you say in response to the first 23 question, which is the one I just read, the answer is no 24 with respect to Labadie. Ameren Missouri did continue 25 efforts to attempt to find a location where both

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Page 153 Meramec's and Rush Island's ash could be stored 1 2 off-site. 3 Is that correct? Α. That's correct. 4 5 MS. LIPELES: I'd like to move --6 THE WITNESS: With respect to the dates I 7 believe. You know, after -- it says did it reconsider a 8 regional landfill in another county after Franklin 9 County adopted the land use ordinances? 10 MS. LIPELES: Right. 11 I'd like to move Exhibit 342 into evidence. 12 JUDGE WOODRUFF: 342 has been offered. 13 Any objections to its receipt? 14 Hearing none it will be received. (INTERVENORS' EXHIBIT NO. 342 WAS RECEIVED 15 INTO EVIDENCE.) 16 17 BY MS. LIPELES: 18 Mr. Giesmann, we previously referred to Q. 19 Schedule 22, which is a document you filed with your 20 surrebuttal testimony in September, and it looks at 21 revenue requirements for the proposed Labadie landfill. 22 Correct? 23 Α. Correct. 24 And it has three scenarios, build landfill at Q. 25 Labadie, build landfill at different location, use a

Page 154 commercial landfill. Correct? 1 2 Α. Correct. 3 Q. And --Α. I don't have that in front of me but --4 5 Q. Pardon me? I do not have that in front of me but I do 6 Α. 7 understand. 8 Q. You may buried under all those papers. 9 Α. Okay. So what was -- explain it to me again. 10 If you want to find it first, go right ahead. Q. It depends if your questioning is about it. 11 Α. 12 So do I need to have it in front --Yes. 13 Q. 14 So it's Schedule 22? Α. 15 Right. It's a highly confidential document. Q. 16 It might be helpful for you to come find it Α. 17 for me. 18 MS. LIPELES: Okay. 19 May I approach? 20 JUDGE WOODRUFF: You certainly may. 21 THE WITNESS: There's all of the paperwork 22 you've given me. 23 Oh, here is another one. 24 MS. LIPELES: Do you want me to take all of the others back? 25

Page 155 THE WITNESS: If you'd like, if you're not 1 2 going to -- I don't need them. 3 MS. LIPELES: I don't think I'm going to need them again. If I do, I'll give them back to you. So 4 5 reduce the confusion. 6 THE WITNESS: Okay. 7 BY MS. LIPELES: 8 Q. Okay. So my question about Schedule 22 is 9 for the option build a landfill at a different location, it appears that this is a generic evaluation and doesn't 10 11 look at any specific site as a different location. Is 12 that correct? 13 Α. That's correct. 14 Q. Now I'd like to ask you some questions about 15 the ash ponds at the existing plant site. 16 And first to address a question that 17 Commissioner Stoll raised earlier. The existing -- the plants and -- the existing ash ponds. There are two 18 19 existing ash ponds at the plant site. Correct? 20 Are you referring to this? Α. 21 Q. No. No, no. 22 We're done with that. Α. 23 Q. I'm moving on to a different topic. 24 I'm sorry. Α. 25 Q. I'm sorry.

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| 1 | A. Okay. |
| 2 | Q. I don't think there is anything in that about |
| 3 | the ash ponds. |
| 4 | A. I didn't think so. That's why you were |
| 5 | confusing me. |
| 6 | Q. Okay. I'm sorry. I'm sorry. |
| 7 | The next topic, ash ponds. |
| 8 | A. Okay. |
| 9 | Q. The current plant site has two ash ponds. |
| 10 | Correct? |
| 11 | A. Correct. |
| 12 | Q. And the plant and the ash ponds are out of |
| 13 | the floodplain of terms of elevation. Correct? |
| 14 | A. Correct. |
| 15 | Q. So in '93 when the bottoms flooded, including |
| 16 | the area where the proposed landfill is, the Labadie |
| 17 | plant and the and the ponds did not flood? |
| 18 | A. That's my understanding. |
| 19 | As you pointed out earlier, I was only there |
| 20 | as an intern, but from my review of the Company |
| 21 | documents that's correct. |
| 22 | Q. Okay. And you can actually see it on the |
| 23 | satellite maps of the floods. You see that plant |
| 24 | sitting as a little island with flood waters all around. |
| 25 | So the two ponds that are on the plant site, |

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| 1 | one was built in 1990 and is not lined. Correct? | |
| 2 | A. No. The one the two existing ash ponds. | |
| 3 | The one was built in | |
| 4 | Q. I'm sorry. 1970. | |
| 5 | A. Oh. | |
| 6 | Q. I can't read my own notes. | |
| 7 | A. That's okay. | |
| 8 | Q. The first one was built in 1970 | |
| 9 | A. Yes. | |
| 10 | Q and was not lined? | |
| 11 | A. It was with the initial construction of the | |
| 12 | plant and it is unlined. | |
| 13 | Q. And the second one was built in 1993? | |
| 14 | A. It was completed then. | |
| 15 | Q. And that has a plastic liner? | |
| 16 | A. That's correct. | |
| 17 | Q. In your sur-surrebuttal testimony, which I | |
| 18 | think you have in front of you | |
| 19 | A. I do. | |
| 20 | Q page 9, lines 19 to 20. | |
| 21 | You say the only groundwater monitoring | |
| 22 | results from the Labadie plant which are discussed in | |
| 23 | detail in Ms. Bradley's surrebuttal testimony reflect no | |
| 24 | CCP contamination. Correct? | |
| 25 | A. Correct. | |

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| 1 | Q. When you say groundwater monitoring results |
| 2 | from the Labadie plant, did you actually mean |
| 3 | groundwater monitoring from the proposed landfill site? |
| 4 | A. That's correct. |
| 5 | Q. Okay. So there my understanding is and |
| 6 | if this correct me, please, if I'm wrong is that |
| 7 | Ameren has not conducted any groundwater monitoring at |
| 8 | the current plant site to look for contamination |
| 9 | regarding the current ash ponds? |
| 10 | A. That's not correct. I mean, it depends on |
| 11 | what your definition of the plant site is |
| 12 | Q. Okay. Have you have you |
| 13 | A how close around it you're talking about. |
| 14 | Q. Have you conducted any groundwater monitoring |
| 15 | on Ameren property? |
| 16 | A. Yes. |
| 17 | Q. On Ameren property that is part of the plant |
| 18 | definition from the original CCN? |
| 19 | A. I do believe so. I'm not positive on that. |
| 20 | Some of the wells that were installed as part of the |
| 21 | civil case I believe were part of that, but I'm not |
| 22 | positive. |
| 23 | Q. Okay. So those are a fair distance from the |
| 24 | plant, from the ash ponds? |
| 25 | A. They're towards the bluffs, correct. |

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| 1 | Q. Okay. So Ameren has not conducted any |
| 2 | groundwater monitoring around the ash ponds per se? |
| 3 | A. The groundwater that's not true, because |
| 4 | the groundwater monitoring is for the new for the |
| 5 | new facility is very, very, close. Approximately |
| 6 | some of the wells are approximately only 300 feet from |
| 7 | the existing ash ponds. |
| 8 | Q. I'm not I'm not talking about the proposed |
| 9 | landfill site. I'm talking about the current plant |
| 10 | site |
| 11 | A. Right. |
| 12 | Q which has two ash ponds, one of which has |
| 13 | been in existence since 1970. |
| 14 | Do you have any monitoring wells around that |
| 15 | pond? |
| 16 | A. We do not. |
| 17 | Q. And do you have any monitoring wells around |
| 18 | the 1993 pond? |
| 19 | A. Again, that's the close we have them very, |
| 20 | very close. |
| 21 | Q. You have them on the proposed landfill site. |
| 22 | I understand that. I'm talking about the current plant |
| 23 | site that is part of the |
| 24 | A. Are there any monitoring wells |
| 25 | Q that is currently in operation. |

Page 160 -- closer than 300 feet to the existing ones 1 Α. 2 that we have? No. 3 Okay. And I have heard Ameren say before --Ο. and I don't know if it's your testimony today -- that 4 5 Ameren is not voluntarily going to do the groundwater monitoring at the plant site but will do it when and if 6 7 required by the Department of Natural Resources as part 8 of your water permit? That's correct. We wouldn't want to do 9 Α. anything that MDNR -- in terms of how they would want us 10 to install wells. 11 12 So voluntarily doing something, we would have 13 to get their permission, and we would want to do it in the fashion, in the direction -- and under their 14 direction I think. 15 16 Q. Are you -- are you involved at all with the 17 Rush Island plant? 18 Α. I am. 19 Do you know that Ameren voluntarily proposed Q. a groundwater monitoring plan at that plant? 20 21 Α. I am not. 22 Q. Okay. And the water permit -- you've said 23 that you will -- and DNR has said and I think you've said you'll do groundwater monitoring at the plant site 24 25 as required by your water permit. Correct?

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Page 161 1 Α. For Rush now or Labadie? 2 No. No. Back to Labadie. 0. 3 Α. So we'll do groundwater monitoring at Labadie as part of our NPDES permit renewal, it's true. 4 5 Q. And the NPDES permit, or the water pollution permit issued by the Department of Natural Resources 6 7 that is currently in effect was issued in 1994 and 8 expired by its own terms in 1999, although you're 9 lawfully allowed to operate under it since then. Is 10 that correct? Correct. 11 Α. 12 And we should point out that we did -- we did submit all of the correct paperwork to renew that. 13 14 Q. And I'm just saying that it's -- I'm just 15 saying that it's somewhat -- that it was issued in 1994. 16 That's as far as I know. Α. 17 Q. And did you see the draft that DNR issued in March of last year and then with-- I'm sorry -- February 18 19 of last year and then withdrew in March? 20 I have looked at it. I couldn't recite Α. 21 specifics from it. 22 0. Okay. But that draft had a provision in 23 there for groundwater monitoring at the ash ponds. 24 Correct? 25 I believe it if you say so. Α.

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| 1 | Q. And it and it told it had asked Ameren |
| 2 | to spend the next three years whenever the permit |
| 3 | gets issued, take another three years to determine where |
| 4 | the groundwater monitoring should be and then another |
| 5 | year and a half to conduct the groundwater monitoring, |
| 6 | and so the public and DNR wouldn't see any groundwater |
| 7 | monitoring for four and a half years starting when and |
| 8 | if DNR issues a revised water permit for the plant? |
| 9 | A. Is there a question there? |
| 10 | Q. Is that correct? Is that your understanding? |
| 11 | A. Those were the words from MDNR. Correct? |
| 12 | Q. Right. |
| 13 | A. That is my understanding. |
| 14 | Q. Okay. You submitted as Schedule 23 your |
| 15 | application to oh, I'm sorry. Not Schedule 23. |
| 16 | You submitted your water permit ap renewal |
| 17 | application that was filed in December 2011 in response |
| 18 | to a data request. Correct? |
| 19 | A. I'm not certain I understand. Say that |
| 20 | again. |
| 21 | Q. In response to a data request here, you |
| 22 | submitted the application that Ameren submitted to |
| 23 | DNR |
| 24 | A. Correct, yeah. |
| 25 | Q in December 2011 as part of their renewal |

Page 163 1 process for your water permit? 2 Α. I believe so, yes. 3 And in that application you state that the Q. unlined ash pond from 1970 was reported in 1992 to be 4 5 leaking and you report -- you reported that to DNR, correct, in 1992? 6 7 Α. I believe -- I don't know the specific language that was in there, but we did include that in 8 9 there. And then in -- and the dates are unclear from 10 Q. 11 your application but it's either 2010 or 2011 -- I think 12 it's 2011 from the context. Ameren undertook two 13 projects to reduce the leakage that had been mentioned to DNR in 1992. Correct? 14 15 Eliminate the leakage. Α. 16 Q. Well, in the permit application, as of then 17 it hadn't been eliminated, and as of the permit application Ameren said it had been reduced and you were 18 19 hoping that it would continue to be reduced? It could be. I don't know the language. 20 Α. Ι 21 can -- I can testify today -- in fact, I was out there 22 last week. There is no -- there is no seepage any 23 longer. 24 Okay. And these were seeps that are visible Α. to the naked eye. Correct? 25

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Page 164 I wasn't there at that point in time. I can 1 Α. 2 only testify to what I did see here recently. 3 I do know that two over 600 foot long, 30 foot deep slurry walls were installed and leakage was 4 5 eliminated. But your confidence that it's been eliminated 6 Q. 7 is based on what you can see. Correct? That's correct. 8 Α. 9 Okay. So unless you do groundwater 0. 10 monitoring, you don't know what's happening below the surface? 11 12 Α. Well, I think we do, because, again, we have 13 a good site conceptual model of the hydrogeologic conditions at the site. We know the directions that 14 they would go in, and we did surface water modeling. 15 But the fact is is that Labadie Creek is 16 17 right next to where these seeps were, very, very close. We did surface water samples there and did not find 18 any -- any contamination from the -- from the ash ponds 19 there. 20 21 You looked around the site but you haven't Q. looked on the site itself? 22 23 Α. So inside the pond? 24 Q. No. You haven't looked -- you haven't --25 we -- we went through this before. You haven't

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| 1 | installed groundwater monitoring around those ponds to |
| 2 | see what might be coming out into the groundwater. |
| 3 | You've done some spot testing that you've decided to do |
| 4 | voluntarily in some locations but you haven't done any |
| 5 | voluntary testing on your own property around the pond, |
| 6 | including the pond that's been in existence for 44 years |
| 7 | and is unlined? |
| 8 | A. That's correct. As I testified before |
| 9 | Q. That's you've answered my question. Thank |
| 10 | you. |
| 11 | The ponds are not going to as part of your |
| 12 | application for a landfill, there is nothing in there to |
| 13 | close the ponds, although you might have to do that in |
| 14 | the future under proposed EPA regulations but there is |
| 15 | nothing currently proposed to close the ponds. Correct? |
| 16 | A. That's correct. |
| 17 | Q. And, in fact, your application, which is |
| 18 | Schedule 23, indicates that you plan to use the ponds |
| 19 | for excess stormwater from the landfills if need be? |
| 20 | A. Correct. |
| 21 | Q. And you haven't announced any plans to remove |
| 22 | ash from those ponds when and if they're closed, have |
| 23 | you? |
| 24 | A. No. |
| 25 | We don't know the rules again, there's |

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| 1 | a couple different proposed rules and those haven't been |
| 2 | finalized. Once they're finalized we'd have a better |
| 3 | knowledge as to understand how we would close the ponds. |
| 4 | Q. Okay. From your experience with Taum Sauk, I |
| 5 | assume you know well that unplanned catastrophic events |
| 6 | can occur? |
| 7 | A. They can. |
| 8 | Q. I now want to look at your plans for what is |
| 9 | called closure and post-closure. So this is after the |
| 10 | landfill's operating period. |
| 11 | Closure is to put a cap on it so additional |
| 12 | moisture doesn't precipitation doesn't come into the |
| 13 | facility, and then post-closure is you would maintain |
| 14 | the cover and the groundwater monitoring for another |
| 15 | 20 years under DNR regulations. Correct? |
| 16 | A. Well, that's correct, unless, you know, MDNR |
| 17 | doesn't give up their regulatory authority. |
| 18 | So if during that post-closure period, during |
| 19 | that 20 years, if things were found that would require |
| 20 | additional monitoring, additional remediation actions, |
| 21 | that's well within MDNR's authority and would happen I'm |
| 22 | quite certain. |
| 23 | Q. Okay. But you haven't your costs don't |
| 24 | include that, do they? |
| 25 | A. They do not. |

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| 1 | Q. Okay. So you're and maybe you can help |
| 2 | me. I'm a little confused because I saw different post- |
| 3 | closure numbers in your DNR application and in your |
| 4 | papers here, and so I'm just curious as to what the |
| 5 | difference is. |
| 6 | In your DNR application and that's not |
| 7 | highly confidential the figure was, like, |
| 8 | 1.6 million. And it says, quote this is on page 4 of |
| 9 | Schedule 23, Appendix R. That's the closure, post- |
| 10 | closure. |
| 11 | It says the post-closure cost estimate |
| 12 | represents the maximum amount of post-closure financial |
| 13 | assurance needed for the entire facility. |
| 14 | Is that correct? |
| 15 | A. I believe so. |
| 16 | I think the difference you had spoke about |
| 17 | a difference and you needed some help with understanding |
| 18 | that, and so I'd have to look at the documents. Maybe |
| 19 | you'd have them there to show me. |
| 20 | But my off-the-cuff response is I believe |
| 21 | MDNR has a specified procedure in terms of calculating |
| 22 | dollars and making sure that we have the financial |
| 23 | assurance and longevity to handle that. |
| 24 | Whereas, other close post-closure dollars |
| 25 | that were calculated were dollars that may not have |

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| 1 | followed those same procedures but from an engineering |
| 2 | perspective may have necessitated their use. |
| 3 | Q. Okay. So the figure that you gave to the PSC |
| 4 | is considerably higher for post-closure. Do you know |
| 5 | what other items you've included in the PSC estimate |
| 6 | where you estimate costs in response to Data Request 12? |
| 7 | A. I don't. That's why what I say, if I had |
| 8 | them specifically I think the difference is, again, |
| 9 | there was a procedural you know, there was an X, Y |
| 10 | and Z, so to speak, from the MDNR application. |
| 11 | Whereas, the numbers that we included in the |
| 12 | PSC data request were again engineering evaluations, but |
| 13 | I'll have to and those and those were rel you |
| 14 | know, when those were provided, those were relative |
| 15 | numbers in terms of comparing for purposes of |
| 16 | comparing one scenario to the other. |
| 17 | Q. Okay. Well, maybe I can expedite this. |
| 18 | Neither your estimate to the DNR, nor your |
| 19 | estimate to the PSC covers remediation of groundwater, |
| 20 | does it? |
| 21 | A. I'm not sure. Say that can you repeat the |
| 22 | question? |
| 23 | Q. Neither your post-closure estimate to DNR, |
| 24 | nor your estimate of post-closure costs submitted to the |
| 25 | PSC includes any costs or liabilities associated with |

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Page 169 1 groundwater contamination that might occur? 2 Α. Only monitoring I believe and things of that 3 nature. 4 Q. So monitoring, but not if the monitoring 5 shows that you've got a problem addressing that problem and remediating it is not part of that cost? 6 7 Α. No doubt -- you're right, but no doubt we 8 would be responsible for that for sure. 9 I'm just saying in looking at the costs that ο. have been calculated for this proposal, that's not 10 included? 11 12 Α. Correct. The same with all of the scenarios. They are relative as I explained before. 13 So the same thing. Groundwater contamination 14 at any site, we would be -- the numbers would be the 15 16 same. 17 Q. Okay. And the same for soil contamination. If soil contamination occurs and you have to clean it 18 19 up, that's costs over and above what you've estimated 20 for this facility? 21 Α. That's correct. 22 Q. And if there is a catastrophic damage and 23 repairs due to, let's say, flood or earthquake, and 24 we're talking major costs here, that are not -- none of 25 that is included in your post-closure cost estimates?

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Page 170 Α. They are not. The same as if an airplane 1 2 crashed into it or at any other site, those aren't 3 included. 4 Q. Well, I didn't ask you about the airplane but 5 thank you. 6 Α. You're welcome. 7 And none of these -- neither of these Q. 8 estimates covers your liability to neighbors in the 9 event that their drinking water is contaminated, does 10 it? 11 Α. They do not. We don't expect that. 12 Q. I know you don't expect it. I'm just saying 13 unexpected stuff sometimes happens. 14 In that specific case it would mean water Α. 15 running -- running uphill. 16 I don't think so, but that's -- neither one Q. 17 of us is a geologist and so I'm not sure that --That would be a good question for our other 18 Α. experts later, right. 19 20 Q. Okay. Is it your testimony that the proposed 21 landfill meets EPA's proposed regulations? 22 It is. Α. 23 MS. LIPELES: For this -- this document is 24 just -- if I can go off questioning for just a minute. 25 JUDGE WOODRUFF: Sure.

Page 171 MS. LIPELES: This document is from the 1 2 proposed -- it's from the Federal Register, so it's a 3 legal document that we can cite to. We have -- it's a long document and we're 4 5 going to be using the excerpt of it that's the -- it's proposed regulations, and the beginning, the long part, 6 7 is EPA's discussion of what's being proposed and then what we're attaching is the actual proposed language. 8 9 JUDGE WOODRUFF: Okay. 10 MS. LIPELES: We have the full document if 11 anybody wants but it's also available as a -- in the 12 Federal Register. 13 JUDGE WOODRUFF: Anybody can look it up. 14 MS. LIPELES: Right. 15 So do you guys have -- maybe I have copies. 16 Actually I don't think I have copies of this. 17 If I can give you the citation, if that's okay. JUDGE WOODRUFF: That's fine. 18 19 MS. LIPELES: May I approach the witness? 20 JUDGE WOODRUFF: Sure. 21 BY MS. LIPELES: Mr. Giesmann, I'd like to hand you what's 22 Q. 23 the cover page for the EPA's proposed regulations at 24 75 Federal Register. 25 And I don't have the first page. The first

Page 172 1 page that we have here is 35239. It was from June 21, 2 2010. 3 Α. I see it. And these are EPA's proposed regulations 4 Q. 5 regarding coal ash disposal. Correct? 6 Α. Correct. 7 And EPA proposed two options, what's referred Q. 8 to as a Subtitle C, which would be more in the line of 9 hazardous waste, although it wouldn't be regulated as, quote, unquote, hazardous waste, and Subtitle D, which 10 11 the industry has been more supportive of, which is --12 regulates -- would regulate disposal under the solid 13 waste rubric. Correct? 14 Α. Correct. 15 And I'd like to direct your attention first Q. to the last page. It's proposed 40 CFR 257.101(a). 16 17 Α. Is it the back? 18 Q. Yes. 19 Α. Okay. 20 And the EPA is proposing a 30-year post-Q. 21 closure period. Correct? Does it say that on here somewhere? 22 Α. 23 0. It's in 257.101(a). 24 They're proposing 30 years subject to 25 exceptions that people can apply for?

Page 173 1 Α. Correct. 2 And your proposal is for a 20-year Q. 3 post-closure period and that's what you've cost it out. Correct? 4 5 Α. Well, that -- we had to follow the MDNR rules for a certain specified time. So, yes, I mean, we would 6 7 have the same -- the numbers would just be extrapolated 8 to get to this. 9 0. Okay. But DNR doesn't prevent you from 10 proposing a 30-year post-closure period, do they? I don't know that for sure. I'd have to 11 Α. 12 check that. 13 Q. Okay. And I'd also like to direct your 14 attention to proposed 40 CFR 257.60. It's at 75 Federal 15 Register 35241. 16 257.60, placement above the natural water Α. 17 table? 18 Q. Right. 19 And Subpart A says new CCR landfills and new 20 CCR service impoundments and lateral expansions must be 21 constructed with a base that is located a minimum of two 22 feet above the upper limit of the natural water table. 23 Correct? 2.4 Correct. Α. 25 MS. LIPELES: May I approach the witness?

Page 174 1 JUDGE WOODRUFF: You may. 2 Did you mark that Federal Register? 3 Okay. 4 MS. LIPELES: No. Unless you want me to. JUDGE WOODRUFF: No. That's not necessary. 5 6 I just want to be clear. 7 MS. LIPELES: Okay. BY MS. LIPELES: 8 9 Q. This is Appendix Z to the landfill 10 application, which I think is Schedule 23. 11 Α. Okay. 12 MS. LIPELES: It's Appendix Z to the landfill 13 application to DNR. 14 THE WITNESS: Z as in Zebra. Okay. 15 MS. LIPELES: Which is -- it's Appendix Z to 16 Schedule 23, which is a -- which is their large 17 application. BY MS. LIPELES: 18 19 And unlike the proposed EPA regulation, the Q. 20 DNR regulations are somewhat more lenient with respect 21 to the relationship between the landfill and the 22 groundwater. Correct? 23 I don't know if I'd use the term lenient but Α. they're different. 24 25 Q. Okay. Well, the DNR -- and the DNR

Page 175 1 regulations for utility waste landfills date to 1997. 2 Correct? Do you know that? 3 Α. I do not know that. 4 Q. The DNR regulations say -- and they're quoted 5 on page 1 of your Appendix Z. 6 Α. I'm there. 7 Okay. And it's 10 CSR 80-11.010(4)(B)6. Q. 8 If the base of the landfill liner will be in 9 contact with groundwater, the applicant shall 10 demonstrate to the Department's satisfaction that the 11 groundwater will not adversely impact the liner. 12 Correct? 13 Α. Correct. 14 And your Appendix Z was submitted in response Q. 15 to that, and Appendix Z says, quote, demonstration base of utility waste landfill liner in intermittent contact 16 17 with groundwater. Correct? 18 Α. Correct. 19 MS. LIPELES: I'm just about done. I just have one more line of questions for you. 20 21 BY MS. LIPELES: 22 Q. There have been some questions raised about 23 the relationship between Ameren Missouri and the Ameren 24 operations in Illinois past and present, and I just 25 wanted to ask you a couple questions about those.

Page 176 Α. 1 Okay. 2 MS. LIPELES: May I approach? 3 JUDGE WOODRUFF: You may. MS. LIPELES: I'd like this marked as 4 5 Exhibit 343. JUDGE WOODRUFF: Yes, it would be 343. 6 7 (INTERVENORS' EXHIBIT NO. 343 WAS MARKED FOR IDENTIFICATION BY THE COURT REPORTER.) 8 9 MS. LIPELES: I never thought I'd be handing out the Ameren annual report but here I am. 10 BY MS. LIPELES: 11 12 Now, Mr. Giesmann, I don't know how familiar Q. 13 you are with the corporate structure of Ameren, but I 14 assume you know that there's a parent corporation, 15 Ameren, and the Missouri and the Illinois operations are 16 all within that same corporate parent --17 Α. They were. 18 Q. -- right? 19 Α. They were. 20 And that's reflected in this annual report Q. 21 which has been marked as Exhibit 343, and you can see on 22 pages 3 to 5 -- they're obviously not numbered -- but 23 the first text pages under my fellow shareholders, it 24 discusses Ameren Missouri. It discusses Ameren 25 Illinois.

Page 177 1 It's -- just to cut short this, towards the 2 end on what's page 9-- marked as page 19, there's a map 3 that shows the Missouri and Illinois service territory. There is also a map at page 13 that shows operations in 4 5 both Missouri and Illinois, and there are other pages 6 throughout this document that reflect Ameren activities 7 in both Missouri and Illinois, all reflective in the 8 common annual report. Correct? 9 Α. Yes. 10 MS. LIPELES: I'd like to move this Exhibit 343 into evidence. 11 JUDGE WOODRUFF: 343 has been offered. 12 13 Any objections to its receipt? 14 Hearing none it will be received. (INTERVENORS' EXHIBIT NO. 343 WAS RECEIVED 15 INTO EVIDENCE.) 16 17 BY MS. LIPELES: 18 Mr. Giesmann, I assume you're familiar with Q. 19 Ameren's services? 20 A. I am. 21 And as far as I can tell, that provides Q. 22 corporate support on environmental matters to Ameren's facilities in both Missouri and in Illinois. Is that 23 24 correct? 25 That's correct, among other things. Α.

Page 178 MS. LIPELES: I have -- these will be my last 1 2 three documents, and I'd like to do them as a package if 3 that's okay. 4 JUDGE WOODRUFF: Okay. With a single number? 5 MS. LIPELES: Sure. 6 JUDGE WOODRUFF: Okay. That would be 3--7 MS. LIPELES: Well, actually why don't we do separate numbers. It will just make it easier. But I 8 9 think we can discuss them all together. 10 JUDGE WOODRUFF: Okay. MS. LIPELES: I'd like these marked as 344, 5 11 12 and 6, please. (INTERVENORS' EXHIBIT NOS. 344 THROUGH 346 13 WERE MARKED FOR IDENTIFICATION BY THE COURT REPORTER.) 14 BY MS. LIPELES: 15 16 Q. Mr. Giesmann, can you identify these 17 documents? 18 And for the benefit of all of us, say which date -- they're all -- well, these -- these appear, if 19 20 you agree, to be letters from Michael Menne of Ameren 21 Services to the USEPA, and there are three different 22 dates? 23 A. I have not seen these before, to my knowledge 24 at least. So I do see that they are from Mike Menne to the USEPA in Washington. 25

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| 1 | Q. And can you just tell us which is marked |
| 2 | as on which date? Which exhibit is which date? |
| 3 | A. So 344 is May 4th, 2009, 345 is March 26th, |
| 4 | 2009 and 346 is January 26th, 2010. |
| 5 | Q. So these are letters after the TVA disaster |
| 6 | at Kingston. Are you familiar with that? |
| 7 | A. I am. |
| 8 | Q. EPA sent letters to utilities asking for |
| 9 | information about their ash ponds, and these are |
| 10 | responses. There is one response by Michael Menne on |
| 11 | behalf of AmerenUE, and that's Exhibit 344, and there |
| 12 | are two responses, an initial and a supplemental |
| 13 | response, from Michael Menne on behalf of Ameren Energy |
| 14 | Resources and Electric Energy, Inc. regarding Ameren's |
| 15 | Illinois facilities, and those are Exhibits 345 and 346. |
| 16 | Is that correct? |
| 17 | A. Okay. |
| 18 | Q. And Mr. Menne I realize you say you |
| 19 | haven't seen these documents, but Mr. Menne has some |
| 20 | environmental responsibility with respect to the ash |
| 21 | ponds in both Missouri at the Missouri plants and the |
| 22 | Illinois plants at least when you had them? |
| 23 | A. Correct. |
| 24 | Q. Does this does this appear do these |
| 25 | appear to be Ameren documents? I realize you haven't |

Page 180 1 seen them before. 2 Α. They do. 3 MS. LIPELES: Okay. I'd like to move these into evidence. 4 5 JUDGE WOODRUFF: All right. 344, which is the letter dated May 4th of 2009; 345, which is the 6 letter dated March 26th of 2009; and 346, which is the 7 letter dated January 26th of 2010 have been offered. 8 9 Any objections to their receipt? 10 Hearing none they will be received. (INTERVENORS' EXHIBIT NOS. 344 THROUGH 346 11 12 WERE RECEIVED INTO EVIDENCE.) 13 MS. LIPELES: I have no further questions. I appreciate your patience. 14 15 JUDGE WOODRUFF: All right. Thank you. 16 THE COURT REPORTER: I also need from you 17 Exhibits 340, 341 and 342. You have the originals. JUDGE WOODRUFF: All right. We'll come up to 18 19 questions from the bench. 20 Mr. Chairman. 21 QUESTIONS BY CHAIRMAN KENNEY: 22 Q. Good morning, Mr. Giesmann. How are you? Good morning. Very good. 23 Α. 24 Q. I don't think I have too many questions, but 25 I want to start with something you -- something you said

Page 181 1 at the end in response to a question. 2 And your response was something to the effect 3 that that would mean water was flowing uphill. 4 And so I'm going to direct some of these 5 questions to Mr. Gass, but I want to ask you some questions since you made that statement to make sure 6 7 that I understand. 8 Is it the case that the utility waste 9 landfill that is being proposed is downhill from where the wells are that are in question? 10 It is downhill and downgradient. 11 Α. 12 Q. Well, that's my question. Is that the same 13 thing when you -- when I read about upgradient and 14 downgradient, does that essentially mean uphill and 15 downhill? 16 Α. Not really. 17 Q. Is there something more technical to it? A little bit more technical to it. Α. 18 19 You know, when we say upgradient or 20 downgradient, as engineers, and more specifically 21 hydrogeologists, we're talking about the waterflow. 22 So water flowing upgradient, up somewhere, or 23 water flowing back downhill from somewhere. 24 For example, I can put it in --It sounds like the same. 25 ο.

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| 1 | A. Well, I can put it in context, like |
| 2 | specifically what we're talking about here is where the |
| 3 | utility waste landfill is situated, the the wells of |
| 4 | the public are or residents are are uphill, way up |
| 5 | on top of a bluff, and the Missouri River is way down |
| 6 | below. |
| 7 | And so there we we have monitoring |
| 8 | wells that are sometimes downgradient and upgradient of |
| 9 | the utility waste landfill. |
| 10 | So waterflow generally is from the bluffs to |
| 11 | the river. So from the bedrock aquifer up on the |
| 12 | bluffs, past the utility waste landfill, to towards |
| 13 | the Missouri River. |
| 14 | Q. And so $$ just so I'm understanding the |
| 15 | terminology correctly, in some places the bedrock |
| 16 | aquifer is referred to as the Ozark aquifer? |
| 17 | A. Correct. |
| 18 | Q. And that is the source of the wells that |
| 19 | supply the people in the area? |
| 20 | A. Correct. |
| 21 | Q. And then the utility waste landfill is |
| 22 | referred to as an alluvial aquifer of the Labadie |
| 23 | Bottoms? |
| 24 | A. Well, it's situated about that. So, again, |
| 25 | the utility waste landfill is situated directly above an |

Page 183 alluvial aquifer. 1 2 Q. Okay. 3 Α. The alluvial aquifer is -- it's in different soils and such. Now, below that is a bedrock aquifer. 4 5 Q. Okay. 6 But there is no alluvial aquifer up where the Α. 7 residents' wells are. It's only a bedrock aquifer. 8 Q. And that's the Ozark aquifer that supplies the wells? 9 10 That's correct. Α. 11 So the alluvial aquifer, does that supply Q. 12 anybody drinking water? No. And, in fact, they're precluded -- MDNR 13 Α. would not -- would not permit a well, to my knowledge, 14 15 in the alluvial aquifer. 16 Q. So essentially Ameren's position then, to put 17 it in just very elementary terms, again, is that the utility waste landfill is down here; the water -- the 18 Ozark aquifer that supply well water are up here --19 20 Α. (Nods head.) 21 -- and the water is not -- the contamination, Ο. if it were to happen, wouldn't flow this -- this 22 direction? 23 Correct. Right. 24 Α. 25 I've got a good picture of it if you'd like.

Page 184 It's kind of a depiction --1 2 Where is that? Is that in your testimony Q. somewhere? 3 Α. I just brought it up with me. 4 5 Q. Can we see it? 6 Α. Sure. 7 This is part of a report we had performed 8 but --9 Is that in anything prefiled that I should Q. have seen? 10 I don't know. 11 Α. 12 Q. All right. 13 Α. This is the AECOM report. 14 MR. LOWERY: Your Honor, to answer your 15 question, the reason it's not is because that drawing didn't exist at the time all of the testimony was filed. 16 17 CHAIRMAN KENNEY: So somebody is probably going to -- I mean, I'd like to see it. 18 19 JUDGE WOODRUFF: We can mark it as an exhibit for the Commission. 20 21 CHAIRMAN KENNEY: Yeah. 22 Do you have copies of it? 23 THE WITNESS: It's my only copy but you can have it. We have others around. 24 25 MR. LOWERY: Mr. Tripp indicates he has some

Page 185 1 copies. 2 CHAIRMAN KENNEY: I thought you might. 3 MR. LOWERY: I did not know that. JUDGE WOODRUFF: All right. While everybody 4 is dealing with that, let me -- let me go back to a 5 different line of questions. 6 BY CHAIRMAN KENNEY: 7 8 Q. Schedule 23 of your testimony -- no. 9 Schedule 21 of your testimony rather. 10 Thank you. 11 This is exactly how I pictured it in my head. 12 Α. Well, it just gives a good picture of it, I thought, for you, you know, better clarify how things 13 14 qo. 15 You can see up on the bluff there is no alluvial aquifer, a technical term, and then down where 16 17 the utility waste landfill is it exists. But you can see, the arrows, they point where the groundwater --18 19 Q. That shows the direction of the groundwater 20 flow? 21 Α. Correct. So that's when I -- when I said at the end, 22 does -- water doesn't flow uphill, that's -- that's the 23 24 way. That's the reason. 25 JUDGE WOODRUFF: Make sure the court reporter

Page 186 has a copy of it. 1 2 We'll go off the record for a moment. 3 (OFF THE RECORD.) (COMMISSION EXHIBIT NO. 1000 WAS MARKED FOR 4 5 IDENTIFICATION BY THE COURT REPORTER.) 6 BY CHAIRMAN KENNEY: 7 Let me turn your attention back to --Q. JUDGE WOODRUFF: Let me deal with this first. 8 9 CHAIRMAN KENNEY: All right. 10 JUDGE WOODRUFF: Exhibit 1000 then has been offered. 11 12 Any objections to its receipt? Hearing none it will be received. 13 14 (COMMISSION EXHIBIT NO. 1000 WAS RECEIVED 15 INTO EVIDENCE.) BY CHAIRMAN KENNEY: 16 17 Q. All right. Let's go back to Schedule 21. It's the 25-page highly confidential Reitz & Jens 18 PowerPoint presentation. 19 20 Α. Okay. 21 Do you have it? Q. 22 I don't. Α. 23 Q. You were discussing it, I think, earlier --24 I'm familiar. Α. 25 Q. Yeah.

Page 187 1 THE WITNESS: Thank you. 2 BY CHAIRMAN KENNEY: 3 Q. And I understand the particular sites that were under consideration are highly confidential and we 4 5 were referring to them by initial names? 6 Α. Correct. 7 We need to continue that? Q. Well, probably. 8 Α. 9 Q. All right. I just wanted to make sure 10 that --They refer to, you know, I think, people's 11 Α. 12 names and such, so yeah. Well, let's turn to the page that you were 13 Q. 14 discussing that is headed potential sites. It's No. 6 15 on mine. 16 Α. Yep. 17 Q. And there are six sites listed under utility waste landfill and then there's one site listed under 18 19 beneficial use? 20 Α. Correct. 21 And then I think in subsequent slides each of Q. 22 those potential sites under utility waste landfill is 23 discussed in turn, starting with the one that begins 24 with capital S. 25 Α. Correct.

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| 1 | Q. All right. So let's move to the one that |
| 2 | begins with the K. It's two words, KC. |
| 3 | A. Okay. |
| 4 | Q. Under the weaknesses it notes the slide |
| 5 | tells us that jurisdictional and floodplain areas. |
| 6 | Does that mean that this particular site was |
| 7 | in a floodplain? |
| 8 | A. It probably does. I don't have firsthand |
| 9 | knowledge of the KC site. |
| 10 | Jurisdictional refers to it's a technical |
| 11 | term used by the United States Army Corps of Engineers. |
| 12 | Q. Okay. |
| 13 | A. And so more than likely this particular site |
| 14 | has wetlands that have been identified on it. |
| 15 | Again, we're sort of mixing apples and |
| 16 | oranges here again. |
| 17 | Jurisdictional meaning probably wetlands on |
| 18 | it and then floodplain areas. And so meaning that |
| 19 | they've looked at the FEMA flood maps and said that |
| 20 | areas on this particular site are prone to flooding or |
| 21 | located within the 100-year floodplain. |
| 22 | Q. Okay. So that is a weakness. Is that |
| 23 | putting aside the jurisdictional component, one weakness |
| 24 | is that it's located within a 100-year floodplain? |
| 25 | A. Right. |

Page 189 1 0. And the fact that it's located in -- is the 2 location of the county highly confidential? 3 Α. I don't think so. So the fact that it's located in 4 Q. 5 Ste. Genevieve County, why was that a weakness? 6 Α. Probably because of the distance. 7 Okay. Let's look at the next one, RI3. It's Q. 8 after the two maps. Page 14 on mine. 9 Α. Right. I'm there. That one is also -- the slide notes locate it 10 Q. 11 within a floodplain. Right? 12 Α. Right. 13 Q. High property values and public opposition are also noted as weaknesses? 14 15 Α. Correct. 16 Q. What exactly are we talking about, the 17 residential property values? What's the pro-- what are the property values that are referred to there as a 18 19 weakness? 20 Α. I just don't know. It could have been 21 commercial as well. Who would know? 22 Q. Probably the previous project manager. 23 Α. So --24 Q. Who is that? 25 Α. It is JoAnn Thee. She has -- she changed

Page 190 positions within Ameren, and I assumed management of 1 2 this after that. Certainly our consultant, Reitz & 3 Jens, would probably --THE COURT REPORTER: I'm sorry? 4 5 THE WITNESS: Certainly our consultant, Reitz & Jens --6 7 BY CHAIRMAN KENNEY: 8 Q. Would be able to testify as to the specific 9 items listed there? 10 They authored this. So specifically what did Α. 11 they mean by higher property values, is it commercial or 12 residential or both, I don't know for certain but one of them would know. 13 14 Q. Okay. And who is testifying that would be able to answer questions about this report? 15 I don't think we have anyone that would --16 Α. 17 like I said, JoAnn is not testifying, nor is Reitz & 18 Jens. 19 Q. What does public opposition refer to? 20 Α. Again, I'm conjecturing a little bit. 21 To the best that you know. Q. 22 Α. Yeah. Right. Right. 23 My sense is that this particular site may be 24 close to some school or community involvement or traffic in that area. Again, this would be a high traffic area 25

Page 191 since we'd be transporting things off-site, so . . . 1 2 How is that public opposition assessed and Q. 3 determined? Say that again. 4 Α. How was it assessed or determined? 5 Q. I don't know that it was a quantifying -- it 6 Α. 7 was qualitative as opposed to quantitative. 8 Q. Okay. Let's jump over to the one that begins 9 with an F that is located in Illinois, and it, too, is located in a 100-year floodplain area? 10 Correct. 11 Α. 12 And then jump over to the next one, the C, Q. 13 begins with a C. 14 A weakness noted there is potential for environmentally sensitive wetland areas. Correct? 15 Right. That's what I was talking about 16 Α. 17 before, the one that said jurisdictional, which probably means that there was something that was identified 18 previously. 19 But I suspect that when our engineers went 20 21 out there in this particular place, they said, well, there is nothing on the -- on the maps that show that 22 but it could be. We'd have to do a determination. 23 24 Q. Now, this whole SlideDeck was prepared as an 25 analysis for a regional utility waste landfill not to

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Page 192 1 dispose of waste from any specific power plant? 2 Α. Correct. 3 Q. Why wasn't there a slide that went through 4 the same strengths and weaknesses for Labadie? 5 I think at this point in time we had already Α. looked at the Labadie site in depth. Again, I forgot 6 7 the date on this. There is probably a date. I'd have to look at it. 8 9 But at that point in time I think we had already received the preliminary site investigation 10 11 approval from MDNR for Labadie, so we didn't -- you 12 know, from Labadie's perspective we were heading -- the 13 site appeared that we would be able to permit it and it would be a foregone conclusion that since it's the 14 15 closest one, of course, to the Labadie site, that would be good. 16 17 Q. Whether it was regional for -- individually for Labadie -- for Labadie, it didn't matter? 18 19 Well, it didn't, because again -- again, I'd Α. 20 have to look at the dates and refresh my memory, but 21 I -- I believe that at that time, again, we didn't -- it was -- it was not a fact that the ordinance at Franklin 22 County would preclude us from using Labadie as a --23 24 Q. As a regional? 25 Right. Eventually it did. Α.

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| 1 | Q. But at this point it had not yet? | |
| 2 | A. I don't think so. | |
| 3 | Q. This was in '08 if we look at the second-to- | |
| 4 | last slide. | |
| 5 | A. Right. So that would that would lead me | |
| 6 | to believe that that is the case. I think it was in | |
| 7 | '10, maybe, that was the ordinance. | |
| 8 | Q. So let me ask another question. We looked at | |
| 9 | those particular sites, KC, RI3, the F one and then CI | |
| 10 | and various strengths and weaknesses noted for that, but | |
| 11 | some of the weaknesses are also, I think, weaknesses | |
| 12 | that would be applicable to Labadie, right, the fact | |
| 13 | that it's located within a floodplain | |
| 14 | A. Correct. You know | |
| 15 | Q public opposition? | |
| 16 | A this was a screening you know, this is | |
| 17 | a screen document. At that point we looked at Labadie, | |
| 18 | again, we're in that 2008 timeframe. | |
| 19 | You know, we like I said, we got the PSI, | |
| 20 | et cetera. We look we were looking at you know, | |
| 21 | in parallel paths as I talked about before. | |
| 22 | And, again, I don't have firsthand knowledge | |
| 23 | but it's my understanding that the Labadie site, we had | |
| 24 | a pretty good feeling as though that would be | |
| 25 | permittable. | |

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Page 194 1 Q. My question, I quess, is slightly different 2 though. 3 Α. Sure. 4 Q. Why would the weaknesses that were applicable 5 to KC, RI3 and the one that begins with an F, specifically the fact that they're in floodplains, why 6 7 wouldn't that weakness apply equally to Labadie? At the screening level it would. No doubt. 8 Α. 9 No doubt at the screening level, if put on an equal playing field and without having any other knowledge, a 10 feasibility-type study, I would definitely say it would. 11 12 Not until you get to the --13 Q. Are there are other strengths? 14 I'm sorry? Α. 15 But there are other strengths that would Q. outweigh that? 16 17 Α. No doubt. And the biggest one, of course, being its proximity for sure. 18 19 Q. All right. So in one of your pieces of 20 testimony there is a note about the cost of the Labadie 21 utility waste landfill per ton versus other options, and 22 I think -- are those numbers -- are those numbers highly confidential? 23 I don't know. 2.4 Α. 25 MR. LOWERY: Which figures were you asking

Page 195 1 about? I apologize. 2 CHAIRMAN KENNEY: The cost per ton for 3 Labadie, the cost estimate per ton of Labadie versus the cost estimate per ton -- I think it's --4 5 MR. LOWERY: I believe so, Mr. Chairman. BY CHAIRMAN KENNEY: 6 7 Well, let me ask you this question and maybe Q. 8 it won't get into the numbers. 9 Does the cost estimate for Labadie include any of the costs associated with these other 10 11 environmental risks? Is that factored into the cost per 12 ton? 13 Α. Well, certainly, you know, when we design the Labadie landfill, again, we try to take into account 14 15 flood protection and seismic stability and things like that. So in any numbers that we've provided for that it 16 17 does. 18 You know, in terms of looking at other sites, whatever else, they would have inherent risks as well. 19 So even if another particular site was found that was 20 21 not in the floodplain, it most certainly would be maybe in a seismic zone and would have other issues such as 22 we'd have to upgrade roads or bridges or things like 23 that to handle traffic volumes or we'd have to relocate 24 25 this or that, a powerline or things like that. So,

Page 196 again, each one has risks and disadvantages and 1 2 advantages. 3 Q. But is that quantified and then put into the 4 range of prices per ton for Labadie? 5 Α. I just don't know. I know, like, the original design was. So if I had -- if you -- are you 6 7 speaking really to the three different scenarios or are 8 you looking at the different --9 0. No. There is -- there is a place in No. 10 your testimony -- and I apologize. I wrote it down 11 here but I didn't write down whether it was from your 12 surrebuttal -- but it gives a range of X dollars to 13 X dollars per ton compared to X dollars to X dollars per 14 ton for other options is the range of --15 Α. I'd rather look at it. 16 Q. Yeah. 17 Α. I hate to talk out of context, Commissioner. All right. While I'm trying to find that, 18 Q. let me ask you a different question to noodle on and 19 20 then I'll try to find the place that I'm looking for. 21 Did you review the other testimony of the 22 other parties in preparation for the hearing or in 23 preparation --2.4 I have. I don't know them wonderfully. I Α. haven't memorized but I have reviewed them. 25

Page 197 1 0. Did you read Mr. Norris's testimony? 2 Α. I have. 3 Q. He makes reference to the fact that repair 4 costs associated with specific seismic and flooding 5 events would be quantifiable. 6 He says these events occur with enough 7 specificity to make them predictable and quantifiable. 8 Do you agree with that? I do not. 9 Α. 10 Why do you disagree with that? Q. 11 Α. You know, we have certain standards by MDNR and just general engineering principles that we have to 12 design facilities for much like we would design, say, a 13 skyscraper. There is codes and things like that you 14 15 design it for. 16 And so MDNR has stipulated what those 17 standards are for us. We have designed the utility waste landfill at Labadie to meet those standards. So 18 it's already in all of the estimates that we've come up 19 with. 20 21 So I believe what he's referring to is what happens if a cataclysmic event happens. 22 23 Q. Right. 2.4 And we have not estimated those, because a Α. cataclysmic event would -- would -- could occur 25

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| 1 | anywhere. The same thing as I was the analogy I was |
| 2 | giving to that skyscraper. |
| 3 | You know, in St. Louis there's a certain |
| 4 | seismic zone and in Western Missouri there's a certain |
| 5 | seismic zone. Right? And so you would design things a |
| 6 | little bit differently in each one of those areas. |
| 7 | But could a cataclysmic event happen in |
| 8 | either one of those and would an engineer normally in |
| 9 | the course of preparing cost estimates and things like |
| 10 | that account for that? No. |
| 11 | Q. Is essentially what you're saying is those |
| 12 | types of events are built into the design of the |
| 13 | facility? |
| 14 | A. That's correct. |
| 15 | Q. Do you insure against those events? |
| 16 | A. Meaning taking out insurance on those? |
| 17 | Q. Yes. |
| 18 | Like do you have specific seismic event |
| 19 | insurance? Is there some company that would write a |
| 20 | policy for seismic events since you're in a fault area, |
| 21 | a fault zone? |
| 22 | A. You know, I'm not real certain on that, |
| 23 | Commissioner. I know we are self-insured to a certain |
| 24 | extent and then we do have supplementary insurance after |
| 25 | that. And the specifics of that, for example, flooding |

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Page 199 and seismic, I don't know if there's riders. I know in 1 2 my own house there are riders. 3 I'll give you an example. There were Q. 4 insurance policies to cover Taum Sauk. Right? 5 Right. Α. That was -- actually we've talked about 6 Q. 7 Taum Sauk. So there were specific policies in place to 8 cover that event. 9 And I'm assuming, if I recall correctly, that 10 there were policies that were peculiar to the specific 11 risks that were peculiar to Taum Sauk. 12 So I would wonder then, would there be 13 similar policies in place to insure against the specific 14 risks associated with being near a fault line, in a 15 floodplain for a utility waste landfill? I would certainly expect so. 16 Α. 17 And I guess what leads me to believe that is that I do know that our director of insurance has made 18 site -- site visits with our insurers to the various ash 19 ponds. So should we build this, I would expect the same 20 21 thing to happen. So yes. 22 0. And just to be clear, the slides that were 23 presented by Reitz & Jens, this is the study of the 22 alternative sites that is referred to in various 24 25 people's testimony. Right?

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| 1 | A. Correct. |
| 2 | Q. But this was not prepared specifically as an |
| 3 | analysis of an alternative for the Labadie utility waste |
| 4 | landfill; this was prepared when you were considering |
| 5 | using Labadie as a regional landfill? |
| 6 | A. Yeah. It was prepared holistically, you |
| 7 | know, as we stated before. Kind of a you know, we |
| 8 | had at that point in time we we knew we had the |
| 9 | site at Labadie that appeared to be very permittable and |
| 10 | developable. |
| 11 | However, once again, we had to look at things |
| 12 | holistically not only just from the Labadie perspective |
| 13 | but from the Meremac and Rush Island perspectives as |
| 14 | well. So you're right. |
| 15 | Q. If you were to remove from the equation the |
| 16 | proximity issue, right, the fact that the utility waste |
| 17 | landfill is located right on site, if you take that, how |
| 18 | big a factor is that, No. 1, in assessing the overall |
| 19 | strengths and weaknesses of the utility waste landfill, |
| 20 | and if you remove that, would that change your analysis |
| 21 | regarding whether Labadie would be the best choice? |
| 22 | A. Well, it's definitely a huge, huge factor. |
| 23 | Transporting things is a big cost, no doubt. |
| 24 | But besides that, there's also a big risk. |
| 25 | So anywhere you would transport CCPs, CCRs, the same |

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| 1 | term, outside of this area, there would be inherent |
| 2 | risks and safety issues. |
| 3 | You know, even if you did it with barge, with |
| 4 | rail or the most likely scenario would be a truck, I |
| 5 | mean, there's a huge amount of risk that we would be |
| 6 | undertaking to get rid of dispose of things that way. |
| 7 | Q. Which would elevate costs? |
| 8 | A. We would have to have loading and unloading |
| 9 | facilities. So outside of just the pure trucking costs, |
| 10 | you know, the fuel and the trucking company and stuff |
| 11 | like that, at Labadie then, for example, we would have |
| 12 | to build some sort of loading facilities, and then |
| 13 | wherever we would take them there would have to be some |
| 14 | sort of unloading facility. Again it comes out dry and |
| 15 | has to be moisture conditioned and pug-milled. |
| 16 | Q. Pug-milled? |
| 17 | A. Uh-huh. |
| 18 | Q. And you said rails are not an option. Right? |
| 19 | A. Not at this point it's not. We don't have |
| 20 | the loading, nor unloading facilities anywhere. Again, |
| 21 | that would be a substantial proposition of millions of |
| 22 | dollars. |
| 23 | Q. So the cost ranges that I was trying to find |
| 24 | are they're in your surrebuttal testimony on page 14, |
| 25 | lines 22 and 23. |

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Page 202 1 So what page? 14 you say? Α. 2 Yes, of your surrebuttal, lines 22 and 23. Q. 3 Is that highly confidential? I'm on sur-surrebuttal. Excuse me. 4 Α. 5 MR. LOWERY: They are not, Your Honor. 6 CHAIRMAN KENNEY: Okay. 7 BY CHAIRMAN KENNEY: 8 Q. So that's what I was referring to, the \$5.40 9 to \$8 per ton versus 15.87 to 43.82 per ton. 10 Α. Uh-huh. 11 And so my question about the 5.40 to \$8 per Q. 12 ton, did that take into account any of those -- did that 13 quantify or does that include any of these other risks that we're talking about, and I think you're saying no? 14 15 Α. Right. Correct. 16 Q. And then the 15.87 all of the way up to 17 43.82, is there any way to -- well, the low end is the 15.87. Do you know which facility that would be? And 18 the high end is 43.82. Do you have any idea --19 20 I don't. I don't remember. Α. 21 Q. Okay. 22 Α. Obviously those are the -- the transportation 23 costs. 24 Q. That -- that was my next question. 25 Α. Yes. Yes.

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| 1 | Q. The reason for that variability is |
| 2 | transportation? |
| 3 | A. Yes. |
| 4 | Q. So could we assume that the 15.87 is closest |
| 5 | to Labadie and the one that is 43.82 |
| 6 | A. Sure. |
| 7 | Q is farthest away? |
| 8 | A. Sure. Sure. |
| 9 | And, you know, I don't think these numbers |
| 10 | those particular numbers have been escalated. These |
| 11 | particular ones were from previous, but looking forward, |
| 12 | if you remember the scenarios, I think we held those |
| 13 | constant. So that, again, it's a little those are |
| 14 | probably a little bit conservative. |
| 15 | CHAIRMAN KENNEY: I don't have any other |
| 16 | questions. Thanks for your time. |
| 17 | THE WITNESS: Thank you. |
| 18 | JUDGE WOODRUFF: Commissioner Stoll. |
| 19 | COMMISSIONER STOLL: Yes. |
| 20 | QUESTIONS BY COMMISSIONER STOLL: |
| 21 | Q. Thank you, Mr. Giesmann. I appreciate your |
| 22 | testimony. |
| 23 | And I'd like to ask I've been reading |
| 24 | about dry coal ash landfills and slurry coal ash |
| 25 | landfills. |

Page 204 1 How would the existing landfill at the 2 Labadie plant be characterized? Would it be one of 3 those two? Α. 4 Slurry. 5 Q. It is slurry? 6 The ash is slurried from the plant, meaning Α. 7 it's mixed with lots of water, so it's a real liquid 8 viscous type. 9 0. Okay. And the proposed landfill, it's my understanding that that's going to be a dry coal ash? 10 Α. That's correct. 11 12 So what happens is when -- when the ash comes 13 out of the plant, you have two types. One is bottom ash, which falls to the bottom of the boiler, similar 14 15 maybe to, like, your fireplace. You have ashes, real 16 heavy stuff. 17 The other one is fly ash. And so when we burn coal, the same thing as you're burning wood in your 18 19 fireplace, you know, you have soot that goes up. 20 And that flash at our boilers is caught by 21 our electrostatic precipitators, or ESPs. That ash currently is mixed with water, large 22 quantities of water, and slurried out there in a slurry 23 mix. 2.4 25 With the new utility waste landfill,

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| 1 | eventually what would happen is that would be dry. So |
| 2 | it comes out of our boilers, the fly ash does. It looks |
| 3 | like talcum powder, a very, very dry substance. |
| 4 | We would mix it with just enough water to |
| 5 | make it like an earth-like consistency. And that's what |
| 6 | I was telling the other commissioner about, pug-milling |
| 7 | it. |
| 8 | We would would mix it with just enough |
| 9 | water, roll it around in a big drum and it would come |
| 10 | out just like earth. It would look like that. It would |
| 11 | be black. |
| 12 | And that's why we would we would then take |
| 13 | that and put it in the landfill, and over time that sets |
| 14 | up like concrete. |
| 15 | Q. And so I guess with the natural rain and |
| 16 | everything else, that helps it solidify and there's a |
| 17 | way to get rid of some too much water or |
| 18 | A. That's correct. |
| 19 | So, you know, concrete for example. Well, I |
| 20 | should say fly ash is a direct replacement for portland |
| 21 | cement in concrete. |
| 22 | And so concrete continues a chemical |
| 23 | reaction happens when you place water in concrete or |
| 24 | cement, and it goes from a liquid form to a real solid |
| 25 | form. And as long as that water is present, the |

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| 1 | chemical reaction typically continues to take place and |
| 2 | it gets harder and harder and harder. |
| 3 | So the same thing would happen with this |
| 4 | particular material, we'd be mixing with our bottom ash, |
| 5 | which is kind of like the aggregate in concrete or the |
| 6 | rocks and have a certain amount of initial water, |
| 7 | just just enough to make it again like earth, not |
| 8 | not flowable. |
| 9 | Then as additional water would would |
| 10 | percolate through, rain water, whatever else, until we |
| 11 | got the final cover on it at the end of the landfill, |
| 12 | that water would be inserted into that chemical reaction |
| 13 | again. It would get harder and harder. |
| 14 | If there was a whole lot of water and |
| 15 | we we have models that predict how much extra |
| 16 | would could or could occur. There's a leachate |
| 17 | collection system below that that would catch that and |
| 18 | we would collect it. |
| 19 | You know, it's very small amounts that we |
| 20 | expect in our modeling that that would be most of it |
| 21 | would be utilized by the landfill. Again, it would make |
| 22 | it hard. |
| 23 | Q. I know these landfills exist, but does Ameren |
| 24 | operate any of the dry coal ash? |
| 25 | A. We do. In fact, we just put one in service |

Page 207 at the Sioux plant, so you can see this exact -- exactly 1 2 what -- what we proposed at Labadie is in operation at 3 our Sioux plant in St. Charles. 4 Q. In your surrebuttal testimony you refer to --5 it's on page 4, line 14. Consequently we added a fabric formed concrete mat. What is that? 6 7 Is that the barriers -- what's been referred 8 to in other testimony as the barriers, I guess to give 9 added protection or to -- just tell me about that. 10 Well, I didn't find it in here, but I do know Α. 11 what you're talking about. It's an FCM. 12 Around the outside perimeter of the berms, 13 what was required by the Franklin County ordinance and what we'll be doing is installing a fabric formed 14 15 concrete mat. And what that means is if you can kind of 16 17 visualize a quilt and a quilt is quilted in squares and kind of filled, or your comforter may be on your bed. 18 And so we have a fabric quilt, so to speak, and we'll 19 20 inject concrete grout into that. 21 So the outside of the berm is kind of a 22 trapezoidal shape, a cross-section is at least, and so the outside face will have this concrete mat on it. 23 24 Again, it kind of -- because that face may not be just perfectly slim or flat, that -- that mat 25

Page 208 will conform to it a little bit. 1 2 And we'll inject that with grout so it will 3 become concrete, and that will protect against any kind of erosion, any kind of -- you know, when the water --4 5 flood levels come up. Again, our berms are above the flood levels. 6 7 Even -- even though actually this -- this concrete mat there will be there, water we do not expect 8 9 to be flowing in that area. 10 Again, if you look in -- in my testimony, 11 you'll see that it's in what we call an ineffective 12 zone. Water just -- it doesn't -- in a flood condition 13 it doesn't flow past there. It just kind of stagnates. But regardless, kind of above and way beyond 14 being ultra conservative, we -- we've decided to go 15 ahead and install this fabric formed concrete mat to 16 17 protect against any of that kind of stuff should it occur. You know, we don't expect it to. 18 19 Q. One other thing I was -- I was curious about 20 and I -- and that is, do you -- or does Ameren currently 21 sell any of the fly ash -- fly ash or any of the other 22 materials to be used in concrete or roofing shingles? 23 We do. Α. Out of Labadie? 24 0. Yes. In fact, we have a Quikrete plant. 25 Α. So

Page 209 maybe you're familiar with Quikrete you buy at Home 1 2 Depo. 3 There is a plant at our Labadie site that takes our ash and utilizes it in there. So I just 4 5 poured some concrete footings at my house for a deck last summer, and I used that particular Quikrete that 6 7 includes our ash from Labadie in that -- in those 8 footings. 9 0. So I guess you -- I guess you sell as much as 10 you can, as much as the company would purchase? That's correct, Commissioner. 11 Α. 12 What -- what happens is is that, you know, the local market kind of decides how much, and no doubt 13 we sell as much as we can right now for that and for 14 15 other purposes, like you mentioned roofing shingles and other such materials, cinders during this crazy, nasty 16 17 winter we just had, the same thing -- the same thing exists with that. Those cinders that you might see in 18 your road are from our plants, or could be. 19 20 However, above and beyond what we're able to 21 beneficially use, we have to find storage space for it and that's it. Most of the roads and sidewalks and all 22 that stuff that you see, a large amount of that -- in 23 24 fact, MoDOT, the highways, that is in their specification to use fly ash. 25

Page 210 1 0. Okay. One last question. 2 And so the cinders that some cities use to 3 put on their streets in the winter comes from one of the 4 Ameren plants most likely? 5 Α. Most likely, right. You know, I can't say specifically which city has what or whatever else, but 6 7 we do sell cinders for that purpose. COMMISSIONER STOLL: Okay. Thank you. 8 THE WITNESS: You're welcome. 9 10 JUDGE WOODRUFF: Commissioner Hall. 11 COMMISSIONER HALL: Yes. I just have a few 12 questions. 13 QUESTIONS BY COMMISSIONER HALL: 14 Q. On page 5 of your direct testimony, you describe the UWL with a little specificity, and I wanted 15 to understand lines 7 through 11, and I want to 16 17 understand to what extent this is required by DNR. So I'm on page 5 of the direct testimony, 18 Α. lines 7 through 11. It says -- beginning with the 19 utility waste landfill will consist? 20 21 Q. Yes. I'll just read it just so I understand. 22 Α. 23 The utility waste landfill will consist of a 24 geo-membrane, an additional clay liner, soil berms, leachate collection and monitoring systems. 25

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| 1 | Additionally, fabric formed concrete will be |
| 2 | installed on the exterior berms to protect against any |
| 3 | flood-induced erosion. The facility will be designed |
| 4 | and constructed so that it would not be impacted by a |
| 5 | 500-year flood. |
| 6 | And so your question was what how much of |
| 7 | these things are required by MDNR? |
| 8 | Q. Yes. |
| 9 | A. Almost all of them. The I don't believe |
| 10 | it's the 500-year flood but I could be wrong on that. I |
| 11 | think it's just the 100-year flood. |
| 12 | But regardless, the other thing that is not |
| 13 | required by MDNR is the fabric formed concrete. They |
| 14 | don't they don't see that as necessary. |
| 15 | The other things, the geo-membrane, the |
| 16 | additional clay liner, soil berms, leachate collection |
| 17 | and monitoring systems are required by MDNR. |
| 18 | The monitoring system was was discussed |
| 19 | earlier, and we had a certain amount of monitoring |
| 20 | wells, and then we were requested by Franklin County to |
| 21 | put some more in there and we did that. MDNR didn't |
| 22 | require those but we went ahead and did that. |
| 23 | Q. So when you when you say that certain |
| 24 | aspects of this are required by DNR, I assume they're |
| 25 | required in order to get a particular permit? |

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Page 212 Α. That's correct. 1 2 And are any of these required by a water Q. 3 permit or are they a construction permit? Α. Right. It -- it is a construction permit. 4 So, you know, we -- we discussed earlier the 5 different approvals that we had to get. So initially it 6 7 was a preliminary site investigation with MDNR, and that was where the MDNR said the site looks pretty good. You 8 better -- let's -- let's go to the next step. And then 9 the next step is that detailed site investigation. 10 So after the PSI was approved we performed 11 12 that. It was a big study that was performed, big books, 13 drawings, things like that. 14 MDNR then took a look at all of that stuff and said, yes, this site will be appropriate for a 15 utility waste landfill and approved that DSI. 16 17 So after that step, our next step was to submit the detailed engineering drawings. So, again, at 18 that point the Commission said, the site is good for a 19 utility waste landfill. Just show us how you're going 20 21 to build it so that we can make sure it's in accordance with all of the details, and that is the step we're in 22 right now. 23 24 We progressed to that point, I alluded 25 earlier, that we -- we got to the point where they had

Page 213 issued a draft permit. And so all their comments have 1 2 been resolved. They expect to issue that permit. 3 Okay. Looking at the three scenarios and Q. 4 the -- and the costs related to each, that's not highly 5 confidential. Right? 6 MR. LOWERY: No, it is not. 7 BY COMMISSIONER HALL: 8 Q. Okay. So Scenario 1 -- and I guess this 9 is the costs through 2058. Ameren estimates that at 256 million. 10 11 How much of that -- and it may not be 12 possible to quantify this, and I understand that -- but 13 how much of that is because the -- the location for 14 which you are seeking this CCN is in a floodplain? 15 Α. Probably a very, very small amount. The only thing that comes to mind that would 16 17 change the design because of the floodplain is that fabric formed concrete mat that we discussed earlier. 18 MDNR didn't require it, but, like I say, Franklin County 19 20 did as part of their ordinance. 21 So, again, that -- that's a very small amount of the whole development costs which were inputs to 22 those scenarios. So very, very minuscule. 23 So the other locations where -- where this 24 ο. 25 landfill might be built would also be designed and

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Page 214 constructed to not be impacted by a 500-year flood? 1 2 Α. Oh, probably not. 3 If -- if you were to develop this in an upland area, I mean, as long as, like I said, if the 4 5 particular area you found -- I mean, was not in a floodplain, the berms and stuff would still all have to 6 7 be constructed. So you'd still have to have the leachate 8 9 collection systems, the monitoring systems, the clay 10 liner, the geo-membrane, all that stuff. So this is just the height of that berm. 11 12 Again, the difference between projecting against a 500-year flood, or if you were in, say, an 13 upland area, again, it's probably very minimal. In 14 15 fact, if it's anything at all. 16 It may -- I'd have to double-check on that, 17 Commissioner, but I'm thinking that it would be nothing 18 at all. 19 I assume that there was not land close to the Q. 20 plant that was outside the floodplain that was in any 21 way a potential site for the landfill? 22 That's correct --Α. 23 Q. And why is --24 -- to my knowledge. Α. 25 And why is that, do you know? Q.

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| 1 | A. You know, there is nothing contiguous because |
| 2 | the plant obviously is is in a floodplain. So we |
| 3 | would have to probably proceed outside of that. We |
| 4 | would need to find another site. I think that's what |
| 5 | what they looked at previously. |
| 6 | Q. But the plant itself was not touched by the |
| 7 | '93 flood? |
| 8 | A. Because it is built up. So when when |
| 9 | they when they built the plant, they built it up. |
| 10 | So, you know, prior to it it was in the floodplain. |
| 11 | Q. What's the useful life of the Labadie plant? |
| 12 | A. I'm not positive. I believe it's in the |
| 13 | range of about 20 to 30 more years. |
| 14 | Q. So the so the plan would be that this |
| 15 | this additional landfill would when filled there |
| 16 | won't be a need for another landfill for the Labadie |
| 17 | plant if this if the CCN is granted on this one? |
| 18 | A. That's correct. |
| 19 | And since you brought that up, that reminded |
| 20 | me. I know we we discussed at some point in time |
| 21 | that the useless life of this landfill is estimated to |
| 22 | be at least 24 years, and that also coincided I know |
| 23 | with with the useful life of the plant. |
| 24 | So, yes, the answer to your question is |
| 25 | correct. |

Page 216 1 0. And going back briefly to these three 2 scenarios. They do -- on Scenario 1, that does include 3 the post-closure costs? 4 Α. I believe so, yes. Yes. 5 COMMISSIONER HALL: I have no further questions. Thank you. 6 7 JUDGE WOODRUFF: I just have one quick 8 question. I'm curious about it. QUESTIONS BY JUDGE WOODRUFF: 9 10 Q. When Ameren was planning a regional coal ash 11 site at Labadie, what was the plan for transporting the 12 ash to Labadie from other locations? 13 Α. I think they were just -- again, it's a little bit unclear to me because I wasn't directly 14 15 involved, but peripherally, the way I understand it, they were just starting to evaluate those options, so 16 17 they were looking at anything and everything. So all of the above. 18 19 Q. So the possibility of a barge but then you'd 20 have to build a port facility? 21 Α. Sure. 22 0. Or --23 Α. On both ends of that. You know, so not only 24 would you have a receiving site at -- or excuse me -- a loading site at one but you'd have to have an unloading 25

Page 217 site at the other. 1 2 JUDGE WOODRUFF: That's the only questions I 3 have then. Before we go to the recross, we'll take a 4 5 break for lunch. Let's try and get back here at 1:30. 6 (THE LUNCH RECESS WAS TAKEN.) 7 JUDGE WOODRUFF: Okay. Let's go ahead and 8 get started and Mr. Giesmann is still on the stand and 9 we're ready for recross based on questions from the bench, beginning with Staff. 10 11 MR. WILLIAMS: Thank you, Judge. 12 RECROSS-EXAMINATION BY MR. WILLIAMS: Mr. Giesmann, you remember when 13 Q. 14 Chairman Kenney was asking you about an alluvial 15 aquifers and bedrock aquifers? 16 Yes, I do. Α. 17 Q. Could you explain more about what an alluvial aquifer is, how it comes about? And if it helps to do 18 19 that by contrasting it with the bedrock aquifer, doing 20 it in that manner. 21 Α. Certainly. Again, I'm not a hydrogeologist and the 22 questions will -- we have some expert witnesses later on 23 24 that could probably put a little bit more color on it. 25 But in essence the difference between the two

Page 218 is the bedrocks are deep aquifers. Those are -- the 1 2 bedrock aquifer, or what the commissioner referred to as 3 the Ozark aquifer, are typically the ones where drinking water wells would be placed. 4 5 The alluvial aquifers are in this particular case and in cases all around the floodplain rivers and 6 7 such, those are the shallow areas lying above the 8 bedrock, where you have organic matter, silts, sands, 9 clays, things like that, where typically we find a 10 reducing zone. 11 Do you remember the discussion with Q. 12 Chairman Kenney about proximity versus floodplain as 13 factors for determining where to locate a utility waste landfill? 14 I do. 15 Α. 16 Q. Do you know if the Department of Natural 17 Resources considers proximity of the landfill to the source of the materials that are being deposited in it 18 19 in determining the suitability of the landfill and 20 particularly in utility waste landfills? 21 Α. No. They're looking at the site specifically for that particular site. They -- they don't consider 22 proximity to the source. 23 24 Q. So they're indifferent to whether or not the 25 utility waste from Labadie Energy Center is deposited

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| 1 | nearby or across the state? |
| 2 | A. Right. They're indifferent. |
| 3 | Q. And if let's say at the Labadie Energy |
| 4 | Center you were going to transport the utility waste by |
| 5 | truck. Would there still be a need for some kind of a |
| 6 | temporary on-site storage facility or would you be able |
| 7 | to just load the cars immediately and ship them out? |
| 8 | A. Yeah. No doubt we'd definitely have to have |
| 9 | some sort of a temporary on-site storage. |
| 10 | You know, how big and how that would be built |
| 11 | and located, again, that's what we referred to earlier |
| 12 | as costing a lot of money, big millions of dollars to |
| 13 | create some kind of a loading facility, a temporary |
| 14 | storage facility and silos. There would probably have |
| 15 | to be something much larger than that just so that |
| 16 | what I would call, like, a surge area, so that we would |
| 17 | store it and then we'd have to load it out. |
| 18 | Q. And in response to some commissioner |
| 19 | questions you talked about pug-milling the ash from the |
| 20 | Labadie Energy Center before it was stored. Do you |
| 21 | recall that? |
| 22 | A. I do. |
| 23 | Q. How would you transport that pug-milled ash |
| 24 | out into the utility waste landfill itself? Is it I |
| 25 | mean, you said it's not going to be a wet slurry as I |

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1 recall, but how would you actually physically get it 2 from where you got it pug-milled out to the landfill 3 itself? Α. I should step back just a little bit probably 4 5 and say, well, as the ash would come out of the -- the boilers themselves and the power plant, it would be 6 7 pneumatically conveyed or blown through pipes, because, 8 remember, it's that talcum powder consistency, the fly ash is at least. 9 10 It would be blown out and the bottom ash 11 probably conveyed out to the site. At that point we 12 would probably have a wetting head that would begin, that little bit of moisture would be added so that it 13 would eventually turn into that concrete, that 14 15 consistency, and we would puq-mill it so that it would be that earth-like consistency as well. 16 17 That's -- so we inject water, mold it a little bit and then -- and that operation right there 18 would be right at the landfill. And so the expectation 19 is that it would just go right into the landfill, the 20 21 small conveyor, out of that pug-mill. MR. WILLIAMS: No further questions. 22 23 JUDGE WOODRUFF: Public Counsel. MR. MILLS: Just a few. And I was actually 2.4 25 going to follow up on that as well.

Page 221 RECROSS-EXAMINATION BY MR. MILLS: 1 2 Q. Do you have a copy of Exhibit 1000 there with 3 you? Α. I do. 4 5 So if you -- if you look at the little inset Q. aerial photo, Labadie is sort of in the top center and 6 7 the proposed site is the red outline in the lower 8 center. Is that correct? 9 Α. Are you talking about the photograph or --10 Yeah, the inset photograph. Q. The bottom one. Okay. I was looking at the 11 Α. 12 top one. Okay. 13 Go ahead. 14 Q. Labadie is sort of a white rectangle near the 15 top center and then there's a red outline around the 16 proposed landfill site directly below that. Is that 17 correct? 18 Α. The white being the Labadie power plant, yes. 19 Yes. 20 Okay. So in response to Mr. Williams' Q. 21 questions, you're planning to run essentially a 22 pneumatic pipe from the plant itself to the landfill? 23 Eventually, correct. I mean, right --Α. 24 initially -- the initial filling would occur, so we would -- we were planning to build this site. And we 25

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Page 222 have to ballast it initially, so there would be an 1 2 initial filling, and we're going to use what is ponded 3 there already, which -- and stockpiled and dry. So we would -- we have ponded ash already. 4 5 We stockpile it so it drains out, the water drains out, and then we would transport that over to this site 6 7 initially, and then after that we would eventually 8 convey it pneumatically like I was explaining. 9 0. Okay. So -- so just to get some -- some weight in there to hold a liner down? 10 Correct. 11 Α. 12 And how will you transport that particular 0. 13 initial fill-in? 14 I believe by truck. It's very -- a short Α. distance there from the ponds, so . . . 15 16 Q. Okay. And then I think you had -- you had 17 questions from Chairman Kenney about the -- the elevation and you had questions from Commissioner Stoll 18 19 about -- about nearby sites. 20 Looking again at that -- at that inset photo 21 in the bottom of Exhibit 1000, couldn't you even closer 22 to the -- to the center itself than the proposed 23 location get up to a higher elevation? 2.4 I'm not sure I understand your question. Α. 25 The -- the proposed landfill site is roughly 0.

Page 223 1 at the same elevation as the Labadie Energy Center. 2 Correct? 3 Α. It's a little below that, but, yeah, 4 generally. 5 Q. A little below. Okay. 6 But if you -- if you look, for example --7 and you can't really tell from the -- from the inset 8 photo -- but if you look at the main part of 9 Exhibit 1000, isn't there a considerable gain in 10 elevation right at the Ameren property boundary, 11 relatively close to the Labadie Energy Center? 12 Α. Like where the bluff goes up? 13 Q. Yes. 14 Yes. Α. 15 So that's -- that's actually closer -- that Q. 16 bluff is closer to the Labadie Energy Center itself than 17 the proposed landfill site? 18 Not the plant, no. No. Α. 19 Q. Okay. The landfill -- proposed landfill site is 20 Α. 21 much closer to the plant than the bluff. 22 0. Okay. And how -- how close is the bluff? Well, I don't know. 23 Α. 24 Okay. Well, let me -- let me ask this Q. 25 another way and maybe you can tell me this way.

Page 224 1 From --2 Α. I just know generally from being out there. 3 Q. In the inset photo you can see the Labadie 4 Energy Center, and on the -- on the main part of the 5 exhibit you can see the Labadie Energy Center and the property boundary. Correct? 6 7 Α. Yes. 8 Q. On the -- on the inset photo, where exactly 9 is the property boundary with respect to the Labadie Energy Center? 10 I could kind of draw it for you. 11 Α. 12 I mean, it -- it go-- it surrounds the -- the 13 property boundary now surrounds the power plant and goes over towards the bluffs, which would be the left side of 14 15 the inset photo. 16 Q. Okay. 17 Α. And then it comes down towards the bottom of the inset to surround the utility waste landfill and 18 then over towards the river to the right. 19 20 So the property boundary that you can see in Q. 21 a red line on the main part of Exhibit 1000, how far 22 over to the left on the inset photo would that be? 23 Α. That -- that red line is not the property 24 boundary. 25 Q. Okay.

Page 225 That -- that red line is the outline of 1 Α. 2 the -- of the landfill. 3 Q. Okay. CHAIRMAN KENNEY: You're talking about this 4 5 one? 6 THE WITNESS: Now you've switched. 7 BY MR. MILLS: 8 Q. Right up here it looks like a red line that 9 says Ameren property line. 10 Oh, I'm sorry. Okay. So go ahead. I'm Α. sorry. 11 12 And so with respect to the main part of that Q. 13 exhibit, it looks as, though, right at the edge of the 14 property boundary the elevation starts to climb fairly 15 steeply. Is that correct? 16 Α. Correct, yes. 17 Q. Okay. How far is that property boundary line from the Labadie Energy Center itself? 18 19 Α. That's what I say. I don't know exactly 20 there. 21 Q. Okay. Α. Yeah, I know that -- like the -- from the 22 Labadie Energy Center to the utility waste landfill is, 23 24 you know, hundreds of feet and from the Labadie Energy Center to the bluffs is thousands, so . . . 25

Page 226 1 0. Okay. What is -- what is the maximum 2 distance that you can feasibly transport fly ash 3 pneumatically? I don't know that. You know, economics 4 Α. 5 definitely play into that in terms of booster, booster pumps and things like that to blow the stuff. So I'm 6 7 not a mechanical. I don't know those details. I know it's not very far because, you know, 8 9 from an O and M perspective, if you get going that far, then you'll have clogs and things like that. So I know 10 11 our experience is blowing things like that are 12 pneumatically conveyed and it has to be fairly close. But you didn't study that as an option? 13 Q. 14 I have not, no. Α. 15 I mean, not you personally --Q. 16 No. No. Α. 17 Q. -- the Company did not study that? Right, not to my knowledge. 18 Α. 19 MR. MILLS: Okay. No further questions. JUDGE WOODRUFF: Okay. And for LEO and 20 21 Sierra Club. MS. LIPELES: Thank you. 22 RECROSS-EXAMINATION BY MS. LIPELES: 23 Mr. Giesmann, I just wanted to start with 24 Q. 25 some of your conversation with Commissioner Kenney about

Page 227 1 the relationship between the residents' wells and the 2 groundwater at the site. 3 And there was a suggestion I think about 4 water would have to go uphill, and you talked about the 5 wells being on the bluffs. But the wells -- the water is accessed where people -- at the people's homes on the 6 7 bluff but the --- the well actually is dug into the 8 bedrock. Right? 9 Α. As far as I know, correct. 10 So the -- so the water that is coming to the Q. 11 residents is from the deeper water below the alluvial 12 aquifer where the -- where the landfill is going to be? 13 Α. Well, if you'd look on that same figure that Mr. Mills pointed out, you'll see graphically that the 14 well is above that area. 15 16 Q. Well, this is a well that you drilled. Okay? 17 Α. And the same -- the same -- I mean, if you look at the houses there, so . . . 18 19 THE COURT REPORTER: I'm sorry? THE WITNESS: If you -- if you look, the 20 21 houses are there, too, the residential houses which 22 correspond to the residential wells. So they're above. BY MS. LIPELES: 23 24 Okay. Q. 25 But they are -- no doubt -- I won't -- I Α.

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| 1 | won't arg quibble. They are definitely within the |
| 2 | bedrock aquifer. I mean, they have to be, sure. |
| 3 | Q. Okay. And the alluvial aquifer the |
| 4 | landfill is going to be right above or in the alluvial |
| 5 | aquifer. Correct? |
| 6 | A. That's well, not into but right there. |
| 7 | Q. Okay. Well, intermittent contact with |
| 8 | groundwater to the extent that there's intermittent |
| 9 | contact, it's in. Correct? |
| 10 | A. Correct. |
| 11 | Q. Okay. And then if the water goes downhill, |
| 12 | or from the alluvial aquifer into the bedrock, once it's |
| 13 | in that bedrock, if it travels in a different direction |
| 14 | from the way these arrows are in Exhibit 1000, it could |
| 15 | go towards the wells. Correct? |
| 16 | A. No. |
| 17 | If you'd look you made two points. You |
| 18 | said if groundwater would travel down, which would mean |
| 19 | from the yellow area to the brick-like bedrock areas, |
| 20 | No. 1, it would go down and then it would go to the left |
| 21 | is what you're suggesting. |
| 22 | And the answer is simply, no, it doesn't go |
| 23 | that way. In fact, the alluvial aquifer, the the |
| 24 | transportation of groundwater is three-quarters of |
| 25 | magnitude higher than horizontally than vertically. |

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| 1 | And so the water does not go down like you're |
| 2 | suggesting. It goes directly towards the Mississi |
| 3 | excuse me the Missouri River. |
| 4 | Q. Well, that's that's a theory. I don't |
| 5 | think that's been documented. Correct? |
| 6 | A. That's correct. It's if you look |
| 7 | at the |
| 8 | Q. Okay. I think you answered my question. |
| 9 | That's the theory. |
| 10 | In terms of the direction of flow, I think |
| 11 | your detailed site investigation documented that when |
| 12 | the river is relatively low, the groundwater flows |
| 13 | towards the river, but when the river is high and it's |
| 14 | full and doesn't can't accept anymore groundwater |
| 15 | into it, it flows away. |
| 16 | And I think Figures 22, 25 and 26 graphically |
| 17 | in your detailed site investigation, which is |
| 18 | Schedule 10, show that flow in directions away from the |
| 19 | river and some of those directions are towards the |
| 20 | bluff? |
| 21 | A. For a very short |
| 22 | Q. It's not so but times of the year the |
| 23 | groundwater flows not towards the river but towards the |
| 24 | bluffs? |
| 25 | A. For a very short time of the year it does |

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| 1 | flow that way. It does not flow vertically but |
| 2 | horizontally. So in other words, we're not going down |
| 3 | into the bedrock aquifer, but we believe but we |
| 4 | believe it to be going in short periods of time during |
| 5 | the year to go towards the bluff but the majority of the |
| 6 | time going horizontally away from the bluff. |
| 7 | Q. Well, directionally I think you have |
| 8 | documented that directionally it goes towards the bluff |
| 9 | part of the year? |
| 10 | A. Correct. |
| 11 | Q. In terms of whether it goes vertical or not, |
| 12 | that's your theory but there is no data to support that |
| 13 | at this point? |
| 14 | A. Correct. |
| 15 | Q. And then I have a question about the ash that |
| 16 | is used on roads at times during the winter. You |
| 17 | referred to it as cinders? |
| 18 | A. Correct. |
| 19 | Q. And I think you might have referred to it as |
| 20 | a fly ash but I think it's actually bottom ash. Is that |
| 21 | correct? |
| 22 | A. That's correct. |
| 23 | Q. I just wanted to confirm that. |
| 24 | A. That's correct. |
| 25 | Q. Because concentrations of toxics in the fly |

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| 1 | ash is considerably greater than in the bottom ash? |
| 2 | A. If I misspoke that you are right. |
| 3 | Q. Okay. And then you talked about Quikrete and |
| 4 | your experience with it setting up like concrete. And I |
| 5 | don't know how long ago you put that deck in, but have |
| 6 | you had experience with how long it lasts? |
| 7 | Because I if we're going on personal |
| 8 | experience, I have some Quikrete in a concrete slab in |
| 9 | my backyard and it was put in a few years ago and it's |
| 10 | already starting to disintegrate. |
| 11 | A. Yeah, and I should point out to you, you |
| 12 | wanted you maybe clarified that the bottom ash and |
| 13 | that was right on is the is the cinders. |
| 14 | However, the fly ash was used in the road |
| 15 | itself probably. So a lot of the roads in concrete |
| 16 | structures have the fly ash encapsulated. It's inside |
| 17 | that concrete road itself. |
| 18 | And so the question about the getting back |
| 19 | to your last question about the Quikrete, I did put it |
| 20 | in last summer, so but, I mean, I have I can I |
| 21 | can speak from personal experience with Quikrete, that |
| 22 | it lasts a very long time. |
| 23 | Q. Okay. But concrete structures are repaired |
| 24 | periodically. Correct? |
| 25 | A. Correct. |

Page 232 1 MS. LIPELES: Thank you. 2 No further questions. 3 JUDGE WOODRUFF: Redirect. REDIRECT EXAMINATION BY MR. LOWERY: 4 5 Q. Mr. Giesmann, I want to -- you were starting to ask a question about -- starting to answer a question 6 7 about groundwater flows and the alluvial aquifer, and 8 you started to answer the question and you were cut off. 9 Do you remember that question about two or 10 three questions ago? I do. 11 Α. 12 What -- what were you going to say in Q. 13 response to that question? 14 Α. Well, I think eventually we did speak about 15 it. I mean, the -- the groundwater flow, again, 16 17 it -- conceptually I think it would be -- we said conceptually it goes from the bluffs towards the -- the 18 river, and I don't know how water could go the other 19 direction in the -- in the bedrock aquifer. 20 21 Again, it would be a good question for our hydrogeologist, folks later on who are the experts. 22 But to my understanding -- and again, I'm 23 24 drawing upon my engineering, civil engineering degree and things like that, I don't see that happening. 25

Page 233 1 0. I think you -- along that same line of 2 questioning there was some discussion about the 3 groundwater flow reversing at certain times of the 4 year. 5 Can you elaborate a little bit on that in terms of the relative time periods that it may reverse 6 7 versus the relative time periods it's -- it's going 8 toward the river and what that means in terms of travel? Yeah. Essentially -- essentially we expect 9 Α. that the vast majority of the year during normal 10 conditions groundwater would flow in the alluvial 11 12 aquifer from the -- or excuse me -- from the bluff side towards the river. 13 14 And for very short periods of time during flood conditions, for example, when the river comes up 15 high, that -- as demonstrated by the DSI, and which 16 17 again has been presented to the MDNR, that -- that flow pattern changes real briefly. 18 19 In terms of travel, to answer your questions about that, I sometimes characterize it as the -- the 20 21 groundwater would take three steps down towards the 22 river and maybe one step back during a year. 23 Q. And that -- and that would happen over time, typically every year it's three down, one back, three 24 25 down, one back?

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| 1 | A. Approximately, right, yeah. |
| 2 | Q. Mr. Williams asked you about the alluvial |
| 3 | versus bedrock aquifer also, and you may have said this |
| 4 | earlier. I didn't re don't recall for sure. But in |
| 5 | terms of drinking water wells, is the alluvial aquifer |
| 6 | used for drinking water? |
| 7 | A. No, it's not. |
| 8 | And that's a big point. MDNR would not |
| 9 | permit drinking water wells in an alluvial aquifer. |
| 10 | Like I stated before, it's kind of a reducing |
| 11 | zone, wherein you have some, you know, chemical |
| 12 | reactions taking place from the rocks and such that are |
| 13 | in there, and you have compounds that are released |
| 14 | during that that reduction or decomposing of the |
| 15 | of the constituents in the alluvial aquifer. |
| 16 | And that's why MDNR, and for that matter, all |
| 17 | of the drinking water wells in the area are in the |
| 18 | bedrock where that action is not taking place. |
| 19 | Q. You were having a discussion with |
| 20 | Chairman Kenney before lunch, and he asked you about |
| 21 | whether you had read Mr. Norris's testimony. |
| 22 | Do you recall that? |
| 23 | A. I do. |
| 24 | Q. And I think the discussion centered around |
| 25 | whether or not there might be some kind of significant |

Page 235 1 event down the road that might result in some kind of 2 cost and you provided -- you had a discussion with him 3 about that. Do you recall that discussion? I do. 4 Α. 5 Do you have any information to put into Q. perspective the risk or whether there is a risk or isn't 6 7 a risk or the relative risk of some kind of cataclysmic 8 event occurring with respect to the landfill? 9 Α. I do. 10 I mean, right now the -- I think there's two general areas that we've kind of been centered on, one 11 12 is flooding and the other is a seismic event. 13 Just to put it in perspective, what the current design includes, is it's -- it's -- the current 14 15 design anticipates a flooding event of a 500-year nature, something very large. 16 17 In terms of seismic design, there's a 2,500year recurrence interval that is contemplated in the 18 design of this for a seismic event of that recurrence 19 20 interval. And so that's what is designed. 21 And, I guess, to take that a step further, you know, what would happen if -- what would happen if 22 we exceeded those? 23 24 And, you know, in a -- in a sense, again, as I testified earlier, that this is a really hard, dry 25

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Page 236 material. It's concrete like. So we're building up out 1 2 of the ground kind of a plateau or pyramid-type shape. 3 And also if it -- if it -- if the flood waters got above that 500-year flood mark, it would just 4 simply -- again, we don't expect -- because it's in that 5 ineffective zone, we don't expect erosion or anything 6 7 like that, although the berms have armoring just for 8 that just in case, but the water comes surrounds it and 9 that's it and then goes back down fairly guickly. In terms of a seismic event, the same thing. 10 11 We -- we would expect some ground motions, some shaking. 12 There could be -- because it's setting up like concrete 13 there could be some cracking in the upper zones of it. But I don't anticipate -- you know, it's not 14 a viscous material. It's concrete. So I don't 15 anticipate big sloughs falling anywhere. 16 17 Again, we would have some cracking and we would -- potential cracking in the FCM that surrounds 18 it, but it would be fairly easy to mitigate that. 19 20 But, again, those are -- those are pretty 21 extreme events. Things that probably would -- again, there would be a lot bigger problems than this in terms 22 of the power plant being flooded or -- or things around 23 24 that, being taken down with a seismic event. 25 I think that Chairman Kenney, he had a fairly Q.

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| 1 | extensive discussion with you about and he used the |
| 2 | initials RI3 and F and KC and some of these other sites, |
| 3 | and you talked to him about that, and there were |
| 4 | questions about weaknesses that were listed in that |
| 5 | Reitz & Jens presentation. Do you recall that? |
| 6 | A. I do. |
| 7 | Q. And and I think I think the the |
| 8 | point of inquiry may have been, well, there's weaknesses |
| 9 | and one of them may have been that it's in a floodplain |
| 10 | and the Labadie site is in a floodplain. |
| 11 | Does the does the existence of a weakness |
| 12 | or a set of weaknesses mean that the site is or is not |
| 13 | appropriate from a hydogeological or geological or other |
| 14 | perspective necessarily? |
| 15 | A. Or even from an engineering perspective, and |
| 16 | I think most of that surrounds the engineering |
| 17 | perspectives. And the answer is simply no. Those |
| 18 | are we design for those parameters. |
| 19 | So the flood the flood risk and the and |
| 20 | the seismic risk, again, we design for those specific |
| 21 | things. |
| 22 | Again, if it if it was cited somewhere |
| 23 | else, would there be those risks? Potentially. Could |
| 24 | there be even other risks, things that we would have to |
| 25 | design for? The answer is yes, we would have to. |

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Page 238 1 0. I believe it was Ms. Lipeles that was asking 2 you some questions about the proposed Federal regulation 3 and the requirement that there be two feet between the natural water table and the base of the liner at the 4 5 time of construction. Do you remember those questions? 6 Α. I do. 7 And at the same time, or in the same line of Q. 8 questioning, there were questions asked about 9 Appendix Z, which is the demonstration as I understand it, that during intermittent contact conditions with the 10 11 groundwater, that the liner performs satisfactorily. 12 Do you remember that? 13 Α. I do. 14 0. And -- and I -- I wasn't clear on this. 15 Is -- is the intermittent contact 16 demonstration, is that something that DNR requires? 17 Α. They -- they do, correct. 18 I guess here -- here is my question: The --Q. 19 the impression left by that line of questioning, at 20 least to me, was that since you have intermittent 21 contact, maybe you're not in compliance with this 22 proposed Federal regulation on the two-foot separation. Is that true? 23 24 No, it's not. We are, in fact, in Α. 25 compliance.

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| 1 | And with the Federal regulation that simply |
| 2 | states is you know, is the base of the landfill above |
| 3 | the natural water table, and we say it is. |
| 4 | Not only am I saying that but Franklin County |
| 5 | has said that. Franklin County's independent registered |
| 6 | professional engineer has has affirmed that as well. |
| 7 | And so from that perspective we are in compliance. |
| 8 | The intermittent contact with with |
| 9 | groundwater simply is a is a statute of the Missouri |
| 10 | Department of Natural Resources for when it simply |
| 11 | allows us to to demonstrate that as water comes up or |
| 12 | comes down, that there is no ill effects on the landfill |
| 13 | itself, the liner, et cetera. |
| 14 | Q. And water could come up and down, for |
| 15 | example, during these temporal high water conditions |
| 16 | that sometimes happen. Is that |
| 17 | A. And will. |
| 18 | Q. Okay. There were questions about EPA's |
| 19 | proposed regulations in a 30-year post-closure period |
| 20 | versus a 20-year. Do you remember that? |
| 21 | A. I do. |
| 22 | Q. If that regulation becomes law, which I think |
| 23 | perhaps in the industry it's expected that that may very |
| 24 | well happen, will Ameren have to comply with the 30-year |
| 25 | post-closure period? |

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| 1 | A. I think so. It's not clear yet, but, yes, |
| 2 | probably. |
| 3 | Q. Would that be true if you built a landfill at |
| 4 | one of these other 22 sites as well? |
| 5 | A. It would. It wouldn't affect the it's not |
| 6 | site specific for sure. |
| 7 | Q. Are the post-closure how do the |
| 8 | post-closure costs relative to the total costs that went |
| 9 | into that revenue requirement analysis you did when you |
| 10 | looked at Options 1, 2 and 3, how do the post-closure |
| 11 | closure costs proportion or relative to the other costs, |
| 12 | where do they sit? |
| 13 | A. Well, that there was a scenario eval a |
| 14 | scenario evaluation was essentially a present value |
| 15 | analysis, wherein we took all of the costs throughout |
| 16 | the life of the landfill and then some and brought them |
| 17 | back to the net present value. |
| 18 | And so the costs associated with that, you |
| 19 | know, 20-year versus 30-years are costs that are way out |
| 20 | in the future, and those would have to be brought back |
| 21 | again. |
| 22 | I would expect that just based on engineering |
| 23 | economics to be a very small amount that would be added |
| 24 | to the the existing site or, you know, Scenario No. 1 |
| 25 | or Scenario No. 2. |

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| 1 | And so in relation to all of the other costs |
| 2 | out there, again, we expect it to be very small. What |
| 3 | drives the big difference is the transportation and |
| 4 | costs of that nature. |
| 5 | Q. You were asked questions I think |
| 6 | Ms. Lipeles referred to them as leaks. I think they've |
| 7 | sometimes been referred to as seeps from the from the |
| 8 | ash ponds that I think you indicated were corrected by |
| 9 | the installation of these slurry walls as as I recall |
| 10 | you mentioning? |
| 11 | A. Correct. |
| 12 | Q. And then that led to some questions about |
| 13 | whether Ameren Missouri is doing groundwater monitoring |
| 14 | and exactly where the wells would be for the ash ponds. |
| 15 | Do you remember that? |
| 16 | A. I do. |
| 17 | Q. Would would you necessarily expect an |
| 18 | effective groundwater monitoring network that was |
| 19 | designed to address just the ash ponds, would you |
| 20 | necessarily expect the ground water monitoring wells to |
| 21 | be right at the toe of the berm or right in within |
| 22 | the plant site the way Ms. Lipeles Lipeles was sort |
| 23 | of asking you about? |
| 24 | A. No. I mean, ultimately, as I testified |
| 25 | previously, you know, that that is something that is |

Page 242 on the purview of MDNR, and we want to make sure that we 1 2 do things in accordance with what they would think is 3 the right way. But if asked my opinion about it directly, I 4 5 do not think that monitoring wells right next to the toe of the existing ash ponds would be appropriate, simply 6 7 from a perspective of if there is a pathway for seepage 8 or leakage in one little area, say a crack or fissure in 9 the existing berms, et cetera, that if you had monitoring wells very close to the berms, you'd miss 10 11 them. It's possible to miss it in my professional 12 opinion. 13 So if it was me that was establishing this, I would -- would push those wells a fair distance away 14 15 simply from a perspective that you can kind of visualize a plume. So when it first comes out of a crack it's 16 17 very small, but as it progresses down through things, it will start to widen, kind of like in this fashion. 18 19 And so, you know, I -- if it were me placing 20 them, I would place them some distance away, not right 21 at that berm toe to catch any of that. MS. LIPELES: I'd like to object to this line 22 of questioning. The witness has said he's not a 23 24 geologist or a hydrogeologist. There are plenty of hydrogeologists that are going to be testifying on these 25

Page 243 conditions -- on these -- on these issues, and he's 1 2 really speculating. 3 MR. LOWERY: You Honor, Ms. Lipeles --Ms. Lipeles just got through asking Mr. Giesmann a bunch 4 5 of questions about groundwater flow and which direction it would be in the alluvial aquifer and wouldn't it --6 7 wouldn't there be impacts in the bedrock. And so I -- I think he's a professional --8 9 he's a civil engineer and has experience in these areas and certainly if he knows, has an opinion, he can -- he 10 can testify about it. 11 12 JUDGE WOODRUFF: I'll overrule the objection. And you can inquire further with other 13 witnesses on that area if you wish. 14 BY MR. LOWERY: 15 16 Q. Mr. Giesmann, I think you were also asked 17 questions by Ms. Lipeles, and this was in connection with this discussion of the ash ponds, about why hasn't 18 19 Ameren gone out and done a bunch of voluntary 20 groundwater monitoring at the Labadie plant. 21 Do you recall that? 22 Α. I do. 23 And one of the questions I think you were Q. asked, I think the assumption inherent in the question 24 25 was that you had gone and done voluntary groundwater

Page 244 1 monitoring of the Rush Island ash ponds. 2 Do you recall that? 3 Α. I do. 4 Q. Is that true? Is that assumption true? 5 That's not true. As part of -- we're Α. evaluating the Rush Island site in much the same manner 6 7 as this one, to -- to build a landfill on top of the 8 existing ash ponds. And so as part of that -- that 9 analysis we had to go through the same -- the same exact 10 criteria with PSI and a DSI. A little bit of a nuance with that site is, 11 12 is in order to build the -- build a new utility waste landfill on top of the existing ash pond there, we would 13 have to close it. 14 15 And so the groundwater monitoring that we've done there at Rush Island has been dictated by MDNR, and 16 17 so they have requested us to do the groundwater monitoring at Rush Island there. 18 19 Q. Why -- why is Ameren essentially waiting for 20 DNR to give it direction about a groundwater monitoring 21 at Labadie or its other plants for that matter? 22 Α. Well, again, as I discussed earlier, I'm 23 certain that they would want to make sure that, you 24 know, and review it amongst themselves in terms of where the placement would be, how it would be placed, how deep 25

and things like that. 1 2 And so while we wouldn't -- I don't think we 3 would want to take a chance and say, hey, this is what we voluntarily want to do, we would want to get their 4 5 input and say, hey, this is -- this is the placement, this is the depth, these type of things. This is what 6 7 we're trying to accomplish with the groundwater monitoring network. 8 9 And that simply is something that MDNR, as pointed out earlier, has -- has -- has indicated to us 10 11 that they're going to probably require in the very near 12 future was part of the NPDES permit, and so to comply 13 with that we will probably plan to wait for that. Has MDNR indicated a need for that kind of 14 Q. 15 data in order to proceed with its review and I think you 16 would expect approval of the construction permit? 17 Α. No. We've done all of the necessary groundwater monitoring from -- from MDNR's perspective 18 19 for the utility waste landfill that we need to. Two 20 separate things. 21 Q. At the very beginning of your cross-22 examination this morning by Mr. Williams, he asked you 23 some questions about how did you come up with the fact 24 that the energy from the Labadie Energy Center is about 25 40 percent of the energy that Ameren Missouri sells with

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Page 246 1 off-system and to retail customers. Do you remember 2 that? 3 Α. I do remember. 4 Q. Could you -- could you explain that calcu--5 because I wasn't clear on -- on exactly how you calculated the number, and maybe it was only me, but 6 7 could you -- could you explain that one more time? Certainly. Absolutely. So, you know, I 8 Α. 9 qot -- I said earlier that the Labadie plant is approximately 2,400 megawatt capacity and our whole 10 system capacity is about 10.5 gigawatts. 11 However, the nuance is is that the Labadie 12 plant is a base-loaded plant and we have a lot of peaker 13 plants. Peaking plants meaning that they run only 14 15 during peak times of energy usage, and -- and those -those plants run very small amounts of time, whereas 16 Labadie runs all of the time. 17 18 So in terms of the net energy output of our system, taking into account the peaking plants and the 19 base-loaded plant at Labadie, Labadie is 40 percent of 20 21 the whole total energy output. Is that clear? 22 MR. WILLIAMS: Yes, it is. 23 I don't have any further questions, Your 24 Honor. 25 Thank you.

Page 247 JUDGE WOODRUFF: All right. 1 2 Then, Mr. Giesmann, you can step down. 3 THE WITNESS: Thank you. JUDGE WOODRUFF: You may call your next 4 5 witness, Mr. Putrich. 6 MR. LOWERY: Yes, Mr. Putrich. 7 JUDGE WOODRUFF: Putrich. MR. LOWERY: I pronounced it the same way you 8 did the first time I saw it. 9 10 JUDGE WOODRUFF: Okay. If you'd raise your right hand, I'll swear 11 12 you in. 13 (Witness sworn/affirm.) 14 JUDGE WOODRUFF: Thank you. 15 THE WITNESS: Uh-huh. STEVEN PUTRICH testified as follows: 16 17 DIRECT EXAMINATION BY MR. LOWERY: Could you please state your name for the 18 Q. 19 record? Steven Putrich. 20 Α. 21 Mr. Putrich, is it correct that you caused to Q. 22 be prepared for filing in this docket three pieces of 23 prefiled testimony, your surrebuttal testimony, your sur-surrebuttal testimony and supplemental testimony 24 25 that have been marked for identification respectively as

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Page 248 Exhibits 5, 6 and 7? 1 2 Α. That is correct. 3 Q. Mr. Putrich, if I were to ask you the same questions that are posed in Exhibits 5, 6 and 7, would 4 5 your answers today be the same as they were in that testimony? 6 7 Α. They would. 8 Q. Do you have any corrections to those 9 testimonies? 10 I do not. Α. Are the answers true and correct to the best 11 Q. 12 of your knowledge, information and belief? Yes, they are. 13 Α. 14 MR. LOWERY: With that, Your Honor, I would offer Exhibits 5, 6 and 7 and tender the witness for 15 16 cross-examination. JUDGE WOODRUFF: 5, 6 and 7 have been 17 offered. 18 19 Any objections to their receipt? 20 MR. WILLIAMS: No objection. 21 JUDGE WOODRUFF: Hearing none they will be 22 received. 23 (AMEREN MISSOURI EXHIBIT NOS. 5 THROUGH 7 WERE RECEIVED INTO EVIDENCE.) 24 25 JUDGE WOODRUFF: Cross-examination, begin

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| 1 | again witl | h Staff. | |
| 2 | | MR. WILLIAMS: No questions. | |
| 3 | | JUDGE WOODRUFF: Public Counsel. | |
| 4 | | MR. MILLS: No questions. | |
| 5 | | JUDGE WOODRUFF: LEO and Sierra Club. | |
| 6 | | MS. HUBERTZ: Do you mind if I come up to | |
| 7 | | JUDGE WOODRUFF: No. That's fine. | |
| 8 | CROSS-EXAI | MINATION BY MS. HUBERTZ: | |
| 9 | Q. | Good afternoon, Mr. Putrich. | |
| 10 | Α. | Hello. | |
| 11 | Q. | I'm Liz Hubertz, and I represent the Labadie | |
| 12 | Environme | ntal Organization and the Sierra Club. So, | |
| 13 | again, I' | ve got a few questions for you this afternoon. | |
| 14 | Α. | Sure. | |
| 15 | Q. | First of all, your CV for last September that | : |
| 16 | was attached to your testimony, Exhibit 5, shows that | | |
| 17 | your profe | essional engineer licensing in Missouri was in | |
| 18 | process. | At what stage in the process is your | |
| 19 | applicatio | on currently? | |
| 20 | Α. | It is completed. I am a P.E. in Missouri. | |
| 21 | Q. | You are currently listed as a P.E.? | |
| 22 | Α. | Yes, and I have been for I'd say at least | |
| 23 | that CV m | ight be a little bit dated for at least I | C |
| 24 | don't know | w at least a year or longer. | |
| 25 | Q. | Okay. I was just checking with that. | |

Page 250 Α. 1 Yeah. Thank you. 2 Q. Okay. Now let's turn to your surrebuttal 3 testimony, page 11, line 9. 4 I believe you have that in front of you. 5 Α. I do. 6 Q. And looking at the -- I can't find it Okay. 7 here. It may be a little bit more than line 9. 8 But within this paragraph, as I understand 9 it, you testified that there would be two feet of 10 vertical separation between the bottom of the landfill's 11 clay liner and the natural groundwater level. Correct? 12 Α. Yes. 13 Q. Okay. And the reason for requiring this two-14 foot gap between the landfill clay liner and the natural 15 groundwater level is so that the contents of the 16 landfill won't get into the groundwater. Right? 17 Α. No, it's not correct. Okay. All right. Well, let's skip that then 18 Q. 19 but -- and you do admit that some parts of the landfill 20 liner are less than two feet above the natural 21 groundwater level. Right? That's not correct. 22 Α. 23 0. It's not correct. 24 You don't -- you don't admit that the 15 --25 the liner below the 15 leachate collection sumps is less

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| 1 | than two feet above the natural groundwater level? |
| 2 | A. I don't consider the sumps as a part of the |
| 3 | liner. They represent about .15 percent of the total |
| 4 | footprint area of the actual liner of the landfill. |
| 5 | And in terms of traditional context, the |
| 6 | sumps would not be considered part of the liner, |
| 7 | especially because of their very small and de minimis |
| 8 | contribution to the total footprint. |
| 9 | Q. Okay. I understand they're small but they |
| 10 | are still below the rest of the liner. Correct? |
| 11 | A. The sumps are by nature designed to be at the |
| 12 | lowest point so that they can collect leachate and the |
| 13 | leachate |
| 14 | Q. That's correct, they can collect leachate. |
| 15 | A. Right. |
| 16 | Q. And leachate is the liquid that forms when |
| 17 | water runs through or on the coal ash. Right? |
| 18 | A. Leachate is formed because of precipitates |
| 19 | that would go through the stack or that would naturally |
| 20 | be in the CCR material when it was compacted, correct. |
| 21 | Very small volumes of leachate are generated in the |
| 22 | process. |
| 23 | Q. Okay. But it is basically liquid mixed |
| 24 | in some way and suspended with the coal ash |
| 25 | materials? |

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| 1 | A. It is in contact and flows through it | , |
| 2 | correct. | |
| 3 | Q. And then it drains through the landfi | ll to |
| 4 | the sump areas which are below the rest of the l | andfill? |
| 5 | A. Sumps are built in design to be | |
| 6 | Q. Or below the coal ash part of the lan | dfill? |
| 7 | A. The sumps are built to be the lowest | part of |
| 8 | the landfill footprint, correct. | |
| 9 | Q. Okay. And do you also do you also | agree |
| 10 | that the base of the liner at the leachate sumps | comes |
| 11 | into contact with the natural groundwater table | during |
| 12 | high water periods? | |
| 13 | A. The actual determination from the DSI | and the |
| 14 | CPA, with additional calculations supporting, in | dicated |
| 15 | that there is two foot of difference between wha | t was |
| 16 | what is defined as the natural high water table | and the |
| 17 | bottom of the liner, so there is two foot of cle | arance. |
| 18 | Q. Okay. At the leachate sumps? | |
| 19 | A. At the leachate sumps it is less than | two |
| 20 | foot. | |
| 21 | Q. Okay. | |
| 22 | A. But again, those are very15 perc | ent of |
| 23 | the total area. | |
| 24 | Q. I understand. | |
| 25 | But they are subject to at the lea | chate |

Page 253 1 sumps they are at the -- at the leachate sumps it is 2 subject to periodic wetting as you described in your 3 surrebuttal at page 11, line -- line 15. Correct? Yes, that's correct. 4 Α. 5 Q. Okay. And you have also stated further down the page on lines 20 to 22 that the sumps may have 6 7 intermittent contact with the groundwater during high 8 water events. Right? 9 Α. You said -- what line was that? 10 That was lines 20 through 22, and I'm para--Q. 11 I'm paraphrasing that. May have intermittent contact 12 with the groundwater during high water events. 13 You say it's not a legitimate source of 14 concern but you do admit that it is something that 15 happens? 16 Α. Only at the leachate sump locations. 17 Q. Only at the leachate sump locations? 18 Right, uh-huh. Α. 19 Q. Okay. We can put some numbers on this. 20 So according to your surrebuttal testimony at 21 line 8, page 11, the natural water table is at 464 feet 22 of elevation. Right? 23 That is correct. Α. 24 Okay. So 464. Q. 25 And the bottom of the landfill liner

Page 254 1 everywhere except for the sumps is at 466 feet 2 elevation. Correct? 3 Α. That is incorrect. 4 Q. Okay. What elevation is it at? 5 Α. That's the lowest that the bottom of the liner is. 6 7 Q. Okay. 8 Α. Everywhere else it's going to slope to 9 various elevations because of making sure there is a natural drain and grade on the leachate collection 10 11 system. 12 Q. Okay. So 466 feet is the lowest part of the landfill liner except for the sump areas? 13 14 That is correct. Α. 15 Q. Okay. And also in your testimony you had 16 referred to Appendix Z to Ameren's construction permit 17 application. This was prefiled as Schedule 23 with Mr. Giesmann's testimony this morning, but I have a copy 18 of it here that I can give you. 19 20 Α. Thank you. 21 Do you recognize this as the Exhibit Z that Q. 22 was part of the construction permit application? I do. 23 Α. 24 Okay. And what is the title of this document Q. 25 as shown in the table of contents page? It's the second

Page 255 1 page in. 2 It reads -- do you want me to read it? Α. 3 Q. Yes, please. Demonstration: Base of Utility Waste 4 Α. 5 Landfill Liner in Intermittent Contact with Ground 6 Water. 7 Q. Okay. So if you can turn to page 3, and 8 maybe two-thirds of the way down the page you see 2.0, 9 Technical Basis. There's a paragraph right above that. And the second sentence in that paragraph reads, the 10 11 bottom of the composite clay liner in the sumps is 12 designed to be at elevation 463. Is that correct? That is correct. 13 Α. 14 Q. Okay. So we've got -- I'm not sure the best 15 way to do this. 16 Basically we have 466 up here. That's the 17 lowest part of the liner everywhere -- I mean, the lowest part of the liner everywhere except for the 18 19 sumps, natural groundwater level, and then the sumps are 20 below the natural groundwater level. Correct? 21 Α. Well, when you reference the natural groundwater level, we're also talking about a very 22 conservative estimate at level. 23 24 It does not mean that the landfill operates with the groundwater at that level throughout its entire 25

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| 1 | lifetime. That's a very conservative and extreme view |
| 2 | of what that high water table would be. That's why we |
| 3 | talk about intermittent context. It's not built to be |
| 4 | placed in the water table. |
| 5 | Q. Okay. But it is at 463 elevation it is |
| 6 | going to have intermittent contact with the water table? |
| 7 | A. It will have intermittent contact. |
| 8 | Q. Okay. And if you can look further down in |
| 9 | the same sentence. It's the final sentence in the |
| 10 | paragraph. |
| 11 | It reads, additionally the sumps will be |
| 12 | gravel filled and are expected to have one to three feet |
| 13 | of water in them under normal operating conditions. |
| 14 | Is that correct? |
| 15 | A. That is what is stated in that sentence. |
| 16 | Q. That and is it is that water or |
| 17 | leachate? |
| 18 | A. These sumps are going to be collecting |
| 19 | leachate. There are there are times and |
| 20 | opportunities when there may be contact water, surface |
| 21 | water, that during the construction sequence when water |
| 22 | could be in those sumps as well. |
| 23 | Q. Okay. Thank you. |
| 24 | Now, in your surrebuttal testimony at |
| 25 | page 13, lines 7 through 8. |

Page 257 1 Are you -- are you done with this for the --Α. 2 Well, hold on to it. Q. 3 Α. Okay. Got it. 4 Q. You may need it back. 5 Α. All right. 6 At line 13 -- page 13, line 8 -- sorry about Q. 7 that -- you testify testified that the landfill design 8 meets or exceeds the proposed USEPA regulations for coal 9 combustion residuals. 10 Okay. Let me show you a copy of -- this is 11 actually part of the proposed rule. It's the part of 12 the Subtitle D, the nonsolid waste option rather than 13 the hazardous waste option that EPA proposed. 14 Α. Uh-huh. 15 And it starts where the -- the section that Q. 16 the proposed rule itself starts rather than all of the 17 preamble stuff. So I'm going to hand this to you. 18 Α. Okay. 19 What was the reference in the surrebuttal testimony that you were referring to? What line was it? 20 21 Let me find it. I have it as page 13, Q. 22 lines 7 and 8, as proposed, meets or exceeds MDNR UWL regulations and the proposed USEPA CCR regulations. 23 24 Thank you for clarifying. Α. 25 So are these the proposed USEPA CCR Q.

Page 258 1 regulations? 2 Yes, they are. Α. 3 Q. Okay. And do you know what the number of the 4 regulation that talks about two feet of separation 5 between the upper limit of the groundwater level, the natural water table and the base of the landfill? 6 7 Α. That is 257.60. 8 Q. Okay. Let's see. I'm not sure that -- I am 9 trying to zoom it in a little bit here. 10 Now, if you could please read 257.60, the 11 proposed regulation, Part A. 12 Α. The new CCR landfills and new CCR surface 13 impoundments and lateral expansions must be constructed with a base that is located a minimum of two feet above 14 15 the upper limit of the natural water table. 16 Okay. And it doesn't read that the landfill Q. 17 must be constructed with the base of the landfill not counting the sump area as a minimum of two feet above 18 the upper limit of the natural water table. Right? 19 20 The rule is written in general terms. There Α. 21 are a number of parts in this rule that could be highlighted that are left general and vague because it 22 is a draft version of the rule. There may be further 23 clarifications in the final version of the rule. I am 24 not aware of what those would be. 25

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| 1 | But in this particular case, the |
| 2 | understanding of the base that is applied to the Labadie |
| 3 | landfill would be identical to how it would apply to the |
| 4 | CCR rule application. |
| 5 | Again, referring to the fact that if you're |
| 6 | comparing the base of the liners with the bottom of the |
| 7 | sumps, they are two completely different things, and, in |
| 8 | fact, effectively the sumps make up less than |
| 9 | .15 percent of the base footprint. |
| 10 | Q. Now, the liner is extends below the sumps. |
| 11 | Right? So you don't have it's not like some cutout |
| 12 | in the liner and then the sumps are, like, sitting down |
| 13 | there by themselves. Isn't that right? Doesn't the |
| 14 | liner kind of scoop down and go up around the sumps? |
| 15 | A. Yeah. In fact, you could look at the section |
| 16 | of the CPA that shows that design, where there is a |
| 17 | there is a pipe header that goes through the leachate |
| 18 | collection system. |
| 19 | So the leachate collection sump is actually a |
| 20 | more porous area, so that any runoff from the liner |
| 21 | that collects in the leachate collection later which |
| 22 | sits, and I can recap that liner system two foot of |
| 23 | compacted clay, which has a permeability of one times |
| 24 | ten to the minus seven, overlain by a 60-mill HDPE |
| 25 | liner, and then one foot of porous media which acts as a |

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| 1 | leachate collection system. | |
| 2 | And so that is that layer that then | |
| 3 | collects any of the infiltrate that is coming through | |
| 4 | the CCR stack inside of the landfill then collects that | |
| 5 | de minimis amounts of water and runs that to the sump, | |
| 6 | and that sump area is located at the lowest spot of the | |
| 7 | landfill footprint, correct. | |
| 8 | Q. Right. At an elevation of 463 as opposed to | |
| 9 | the 466 elevation, which was the lowest point of the | |
| 10 | rest of the landfill. Right? | |
| 11 | A. And it's designed that way so that water will | |
| 12 | flow to that point. | |
| 13 | Q. So it will drain? | |
| 14 | A. Correct. | |
| 15 | Q. Okay. I had another question about your | |
| 16 | testimony. | |
| 17 | In your surrebuttal testimony you indicated | |
| 18 | there there would be two feet of vertical separation | |
| 19 | between most of the bottom of the landfill and the | |
| 20 | natural water natural groundwater table. Right? | |
| 21 | I mean, is that how I have a couple of | |
| 22 | places where you mentioned it. It's let's see. | |
| 23 | Page 11, line 7, page 11, line 9. I think you said | |
| 24 | natural groundwater level rather than table. | |
| 25 | And if you want to check to make sure that | |

Page 261 1 I'm not putting words in your mouth because I'm going to 2 ask you about a sort of different terminology that you 3 used in your sur-surrebuttal testimony. Uh-huh. Okay. So you're referring to 4 Α. 5 page 11, line 7. And where else did you -- did you mention? 6 7 I think I have it at page 11, line 9. And Q. 8 when you say natural groundwater, you describe it as 9 natural groundwater table and one natural groundwater 10 level. 11 Α. Okay. 12 And I'm assuming that you mean the same thing Q. 13 by both of them since they're, like, pretty much right next to each other. 14 15 I mean the same thing. Α. 16 Q. Okay. In your sur-surrebuttal testimony you 17 testified that there would be two feet of vertical separation between most of the bottom of the landfill 18 19 and the maximum average groundwater level. Can you point to me where you're looking, 20 Α. 21 please? 22 0. One place was at sur-surreply (sic), page 1, 23 line 19. I also have it at sur-surrebuttal page 2, line 13. 24 25 Α. Okay. Could I put this in context then if

Page 262 you're going to reference it, do you mind? Because it 1 2 sounds --3 Q. Well, I was going to ask you about the difference between the two, so I think --4 5 Okay. Go right ahead. Α. -- that's probably what you mean. 6 Q. 7 Α. Uh-huh. 8 Q. Okay. What is --9 Α. Yeah. Well, I guess the point there is that it's actually being -- clarified is not used as a proper 10 11 term, proper name. 12 In other words, it's saying on line 18 on -on the sur-surrebuttal testimony, line 18, it says there 13 will -- they will have intermittent contact with the 14 15 upper limit of the natural groundwater table, which is exactly what I used in the -- in my surrebuttal 16 17 testimony. In fact, is what is referenced in the proposed CCR regs and what is proposed in the MDNR 18 19 requirements. 20 And then I define i.e. means, in other words, 21 what has been very conservatively assigned as the 22 maximum average groundwater level. So it's not using a proper name. It's 23 24 actually giving a clarification to the reader to understand that, in other words, this means this. 25

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| 1 | And that goes back to Appendix Z and the |
| 2 | determination by Reitz & Jens, a third-party independent |
| 3 | expert, and then peer reviewed by the an independent, |
| 4 | Andrews Engineering. |
| 5 | Q. And the Appendix Z uses the term maximum |
| 6 | average groundwater level, doesn't it? |
| 7 | A. I'd have to look back and see. I mean, as |
| 8 | you can tell I'm not sure the line of questioning, |
| 9 | but you can tell the line the words can be somewhat |
| 10 | interchanged easily. The idea, though, is I think |
| 11 | clear. It's the same idea but |
| 12 | Q. That's what I was getting at. |
| 13 | You just used different terminology and I was |
| 14 | just making sure you weren't switching from one thing to |
| 15 | another in a way that was mystifying me. |
| 16 | A. No. |
| 17 | Q. And the proposed EPA rule requires that it be |
| 18 | a minimum of two feet above the upper limit of the |
| 19 | natural water table? |
| 20 | A. Corr yes, that's correct. |
| 21 | And I believe based on the definitions that |
| 22 | are in the CPA, they are defining the upper limit of the |
| 23 | natural water table as 464. |
| 24 | Q. So it's your testimony that the upper limit |
| 25 | of the natural water table the maximum sorry. Let |

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| 1 | me try that again. The upper limit of the natural water |
| 2 | table is the same as the maximum average water table, |
| 3 | groundwater table? |
| 4 | A. The upper limit of the groundwater tables as |
| 5 | defined in Appendix Z, based on probability and |
| 6 | statistics, river levels, a very detailed engineering |
| 7 | evaluation which arrived at this number which |
| 8 | conservatively represents what you're referring to in |
| 9 | the proposed CCR rule is what is in the MDNR language |
| 10 | and what I've used in my testimony. |
| 11 | Q. Okay. Now, you were kind of getting into |
| 12 | this next area. You testified in your sur-surrebuttal |
| 13 | testimony at page 2, line 20, that in order to come up |
| 14 | with a 464-foot elevation of the natural groundwater |
| 15 | level, measurements of groundwater were monitored |
| 16 | monthly from the limits of the Labadie Energy Center for |
| 17 | one year. |
| 18 | Do you see it? It's at the bottom of page 2 |
| 19 | there. |
| 20 | A. I do see that, that is correct, uh-huh. |
| 21 | Q. First of all, the Labadie Energy Center is |
| 22 | actually the operating power plant. Did you mean that |
| 23 | the groundwater monitoring was conducted at the Labadie |
| 24 | Energy Center itself? |
| 25 | A. No, I did not. That may be misstated there. |

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| 1 | As a part of the DSI work, water levels were |
| 2 | measured within the footprint of the actual Labadie |
| 3 | proposed Labadie landfill. |
| 4 | Q. There were at the landfill site. |
| 5 | A. Yes. Thank you. |
| 6 | Q. Okay. I just wanted to clarify that in case |
| 7 | there was some groundwater monitoring that we missed. |
| 8 | And then again according to your testimony on |
| 9 | the next page, page 3, lines 12 to 14, the groundwater |
| 10 | data was compiled during a, quote, a typical period of |
| 11 | consistently high elevations within the Missouri River, |
| 12 | end quote, compared to, quote, a more representative |
| 13 | river elevation, end quote, as shown by data collected |
| 14 | over nearly an eleven-year period. Is that a fair |
| 15 | statement of your testimony in those lines? |
| 16 | A. That's exactly what I I said, yes. |
| 17 | Q. Okay. Thank you. |
| 18 | And there are nearly eleven years of river |
| 19 | data collected Missouri River data collected, and the |
| 20 | river data ran from 1999 to 2010. Correct? |
| 21 | That's the eleven-year period? |
| 22 | A. I believe that's correct, yes, uh-huh. |
| 23 | Q. Okay. |
| 24 | A. Yes, it was, uh-huh. |
| 25 | Q. So if it had been an even 20 years of |

Page 266 1 Missouri river data, it would have included the 1993 2 flood going back 20 years from 2010? 3 Α. Okay. It would have included 1993 at any rate? 4 Q. 5 I suppose. I'd have to do public math. But Α. 6 let's see. 7 I'm bad at it too. Q. 8 Α. Right, sure. 9 So 20 years back, that would be 1990. 10 That covers 1993? Q. 11 Α. So it covered 1993, yes. 12 And 15 years back would cover the flooding of Q. 1995, or could cover the flooding of 1995? 13 14 Fifteen years minus 2010 would be 1995, Α. 15 correct. 16 Q. And if the data had been compiled one year 17 later, it would have included the high flooding of 2011. Correct? 18 19 I suppose it would have, yes. Α. 20 Q. One year later than 2010. 21 Okay. That's fine. No more hard math, I 22 promise. 23 Α. It was public math but that's okay. It's not 24 hard math. It's just doing it in public. 25 Well, what's hard is doing it in public. Q.

Page 267 Α. Right, exactly. 1 2 That's what makes it difficult. Believe me, Q. 3 I'm with you on that. Α. Yes. 4 5 Okay. And just to clarify a couple other Q. 6 things. 7 As far as you know, Ameren never considered 8 any specific alternative sites for disposal of the 9 Labadie landfill coal ash, did it? 10 I -- that -- that is not in my purview of Α. understanding, and so I -- I can't really comment on 11 12 that. 13 Q. Okay. That's fine. I was just -- I was just 14 clearing it. 15 So you didn't personally do anything to evaluate the suitability of Labadie vis-a-vis any other 16 17 site? 18 A. I did no alternative analysis or anything like that, correct. 19 20 Okay. So you really can't say whether there Q. 21 is some other -- other better site out there? I would not be qualified to make that 22 Α. 23 statement right now. MS. HUBERTZ: Okay. Thank you. That's all I 24 25 have.

Page 268 1 THE WITNESS: Thank you. 2 JUDGE WOODRUFF: All right. Questions from 3 the bench. Mr. Chairman. 4 5 QUESTIONS BY CHAIRMAN KENNEY: 6 Mr. Putrich, good afternoon. Q. 7 Α. Hello. 8 Q. You were retained specifically for the 9 purposes of providing the testimony in this case. Right? 10 Correct. 11 Α. 12 Q. Okay. So you didn't have anything to do with 13 the initial design of the --14 Α. Nothing. 15 Okay. What -- so -- okay. Did you charge Q. 16 Ameren on an hourly basis or are you charging, like, 17 based upon all of your -- on a project basis? 18 Just on an hourly basis, correct. Α. 19 Q. What is your hourly rate to prepare the 20 testimony, the report? 21 Α. \$185 an hour. And what do you charge to appear here? 22 Q. 23 A lot more. No. Α. 24 100-- I think it's 195 an hour, yes. 25 It's a little more? Q.

Page 269 1 Α. A little more. 2 Q. All right. 3 And I looked through your CV and you have 4 representative project experience. 5 Generally speaking, are all of those projects on behalf of utility-type entities? 6 7 Α. Yes, they are. 8 Q. Have you ever worked or provided testimony or 9 expertise on behalf of community organizations like LEO or environmental organizations like Sierra Club? 10 11 Α. Not like that, but I have represented 12 community interest at integrated steel mills, where there was concern by the citizenry, and I was brought in 13 as a third party to represent, I guess in a way, both 14 parties, to look at the concerns that they had and to 15 help them reconcile those. 16 17 But the overwhelming majority of my work is as I am representing Ameren. I -- I do not work for the 18 Sierra Club or other interests like that, correct. 19 20 And you're primarily a professional engineer; Q. 21 you don't have any expertise in hydrogeology? My expertise is really in geotechnical 22 Α. 23 engineering but also geoenvironmental engineering. So 24 I'm familiar with that terminology but I am not a P.G. I'm a P.E. 25

Page 270 CHAIRMAN KENNEY: Okay. I don't actually 1 2 have any other questions. Thank you. 3 THE WITNESS: Okay. Thank you. JUDGE WOODRUFF: Commissioner Stoll. 4 5 COMMISSIONER STOLL: I have no questions. 6 Thank you for your testimony. 7 THE WITNESS: Thank you. 8 JUDGE WOODRUFF: Commissioner Kenney. COMMISSIONER KENNEY: Don't even ask. 9 10 JUDGE WOODRUFF: Commissioner Hall. 11 COMMISSIONER HALL: No questions. 12 QUESTIONS BY JUDGE WOODRUFF: 13 Q. I just have a question that may be very 14 simple, but it deals with this idea of the base of the 15 liner not being as high as Sierra Club would like it to 16 be. 17 What would be involved in raising it a foot or two? Would that be difficult? 18 19 It -- it would require significant costs to Α. raise the entire elevation of the footprint by that 20 21 amount. So you'd have a lot of earth fill and additional costs, which I'm assuming then would be 22 23 passed back on to the ratepayers. 24 Q. Do you have any idea how much? 25 I -- I can't -- I don't know what that would Α.

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Page 271 be. I -- I could -- I don't know. It would be -- it 1 2 would be enough that it would be a noteworthy addition, 3 plus it would change all of the hydraulics and hydraul-you would have to redesign the entire landfill 4 5 basically. 6 JUDGE WOODRUFF: Okay. Thank you. 7 THE WITNESS: Yes, sir. JUDGE WOODRUFF: Redirect then? 8 9 Or excuse me. Recross, beginning with Staff. 10 MR. WILLIAMS: No questions from Staff. JUDGE WOODRUFF: Public Counsel. 11 12 MR. MILLS: No. 13 JUDGE WOODRUFF: From Sierra Club, LEO. 14 MS. HUBERTZ: Hold on. I need to consult with my co-counsel. 15 JUDGE WOODRUFF: All right. 16 17 RECROSS-EXAMINATION BY MS. HUBERTZ: 18 All right. You had answered a question from Q. 19 Judge Woodruff about the two feet of separation from the 20 base of the liner, including the sumps being two feet --21 being two feet of separation from the water table, and I 22 believe the way he asked it was that is as the Sierra Club wants it to be two feet. 23 24 But it's also what the rule actually -- the 25 proposed rule actually states, doesn't it?

Page 272 1 Must be constructed with a base that is 2 located a minimum of two feet above the upper limit of 3 the natural water table. Α. Let me state that both MDNR, the county and 4 5 the county's independent registered professional engineer and in my opinion and in the engineer's opinion 6 7 that designed it, the base of the liner does have two foot of separation. 8 9 All those entities, including professional engineers, regulators, all understand what I'm talking 10 about, and that is that sumps represent less than -- I 11 12 hate to sound like a broken record, but a very, very 13 small percentage. 14 And, therefore, the intent of that directive, that regulation, this proposed regulation, is to say 15 that you are designing the landfill liner en masse with 16 17 two foot of separation, and that's exactly what's happened at Labadie. 18 19 Q. Two feet of separation except for the sumps. 20 So --21 MS. HUBERTZ: No. That's all I have. Thank 22 you. 23 JUDGE WOODRUFF: Okay. Redirect. 24 MR. LOWERY: Very briefly. REDIRECT EXAMINATION BY MR. LOWERY: 25

Page 273 1 0. Mr. Putrich, have you ever been asked by an 2 environmental group or citizens group, something 3 analogous to LEO or the Sierra Club, to testify? Α. No, I haven't, but should I give them my 4 5 card? 6 You can talk with them afterwards. I don't Q. 7 know. 8 MS. HUBERTZ: We know where to find you now. BY MR. LOWERY: 9 10 Have you ever -- have you actually ever Q. 11 testified as an expert witness in a court of law or 12 before an expert -- or before an administrative agency 13 like this before? 14 Α. This is -- no, I have not done that. MR. LOWERY: Thank you. That's all I have. 15 16 JUDGE WOODRUFF: Okay. 17 And you can step down. 18 THE WITNESS: thank you. 19 JUDGE WOODRUFF: Let's take a short break now before we go on to our next witness and come back at 20 21 2:45. 22 (A RECESS WAS TAKEN.) 23 JUDGE WOODRUFF: Okay. Let's go ahead and 24 get started again. 25 And while we were on break, we have a new

Page 274 witness on the stand, and I assume you are Lisa Bradley. 1 2 DR. BRADLEY: I am. 3 JUDGE WOODRUFF: If you'd raise your right hand. 4 5 DR. BRADLEY: Yes. 6 (Witness sworn/affirm.) 7 JUDGE WOODRUFF: Thank you. 8 You may inquire. 9 LISA JN BRADLEY, Ph.D., DABT, testified as follows: 10 DIRECT EXAMINATION BY MR. TRIPP: 11 Dr. Bradley, would you please identify Q. 12 yourself on the record? 13 Α. I am Lisa JN Bradley. 14 And, Dr. Bradley, are you the same Lisa JN Α. 15 Bradley who caused to be filed in this case surrebuttal testimony that has been marked as Exhibit 8? 16 17 Α. Yes. 18 Q. Do you have any corrections to that testimony? 19 20 I do not. Α. 21 Now, is the information provided in that Q. 22 testimony true and complete to the best of your 23 knowledge and belief? Yes, it is. 24 Α. 25 And if I were to ask you the same questions Q.

Page 275 1 that are contained in that surrebuttal testimony today 2 while you're here under oath, would your answers be the 3 same? 4 Α. Yes. 5 MR. TRIPP: Your Honor, I would move Exhibit 8 into the record and tender Ms. Bradley for 6 7 cross-examination. JUDGE WOODRUFF: Exhibit 8 has been offered. 8 9 Any objections to its receipt? 10 MR. WILLIAMS: No objection. JUDGE WOODRUFF: Hearing none it will be 11 12 received. (AMEREN MISSOURI EXHIBIT NO. 8 WAS RECEIVED 13 14 INTO EVIDENCE.) 15 JUDGE WOODRUFF: And cross-examination, again, beginning with Staff. 16 17 MR. WILLIAMS: No questions. JUDGE WOODRUFF: For Public Counsel. And 18 you're just in time. 19 20 MR. MILLS: No questions. 21 JUDGE WOODRUFF: Okay. For Sierra Club, LEO. 22 MS. LIPELES: Thank you. 23 I'd like to use the podium. 24 JUDGE WOODRUFF: Go right ahead. CROSS-EXAMINATION BY MS. LIPELES: 25

Page 276 1 0. Good afternoon, Dr. Bradley. 2 Α. Good afternoon. 3 Q. I'm Maxine Lipeles, one of the counsel for Intervenors Labadie Environmental Organization and 4 5 Sierra Club. 6 You have your testimony in front of you I 7 gather? 8 Α. I do. 9 0. Okay. On page 7, lines 5 to 6 and 9 to 10, 10 you make the point that toxics are not harmful without 11 high levels of exposure over a long period of time. Is 12 that correct? 13 Α. Correct. 14 And then you make the same point on page 8, Q. 15 lines 5 to 6, where you say it is therefore simply not 16 true that there are no safe levels of exposure to these 17 constituents? 18 Α. Correct. 19 Q. Now, lead is a constituent of coal ash, is it 20 not? 21 Α. It's a very minor constituent but is present in coal ash. 22 23 Q. And are you aware that the Centers for 24 Disease Control says that there is no safe level of 25 blood lead exposure?

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Page 277 They base that on the blood lead level. 1 Α. 2 That's not that there is no exposure to lead, that 3 they're not saying that there is no safe level of exposure, because lead is present in background soils. 4 5 Q. But exposure is measured in terms of blood -presence in the blood. Correct? That's how you tell 6 7 whether somebody is exposed to lead. That's one measure, correct. 8 Α. 9 0. And arsenic is also a constituent of coal 10 ash, isn't it? 11 Α. Yes, it is. 12 And as a toxicologist I assume you're Q. 13 familiar with the toxicological profiles published by 14 the Federal Agen-- Federal governments -- Agency for 15 Toxic Substances and Disease Registry, or ATSDR? 16 Α. Yes. 17 Ο. And the ATSDR defines acute exposure as exposure to a chemical for a duration of 14 days or 18 19 less. Is that correct? 20 Α. For acute exposure, yes. 21 Q. Yes. And in contrast, the ATSDR defines chronic 22 23 exposure as exposure to a chemical for 365 days or more. Correct? 2.4 25 Α. That's ATSDR's definition, yes.

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| 1 | Q. Do you have a different definition? |
| 2 | A. Well, USEPA defines a chronic exposure as |
| 3 | greater than seven years. |
| 4 | Q. Okay. |
| 5 | A. And subchronic is less than seven years. |
| 6 | Q. Okay. And for us nontoxicologists, is it |
| 7 | fair to say that acute exposures are short-term |
| 8 | exposures while chronic exposures are longer-term |
| 9 | exposures? |
| 10 | A. Correct. |
| 11 | Q. Are you aware that ATSDR's toxicological |
| 12 | profile for arsenic reports of harmful health effects |
| 13 | due to both short-term or acute high exposures and long- |
| 14 | term or chronic low exposure? |
| 15 | A. I expect that they would, yes. |
| 16 | Q. Okay. On page 8, lines 9 to 11 of your |
| 17 | prefiled testimony, you state with only a few exceptions |
| 18 | constituent concentrations in coal ash are below |
| 19 | screening levels developed by the USEPA for residential |
| 20 | soils and are similar in concentration to background US |
| 21 | soils. Correct? |
| 22 | A. Correct. |
| 23 | Q. Okay. I'm going to ask you some questions |
| 24 | about that. |
| 25 | First is you begin that sentence by with only |

| | Page 279 |
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| 1 | a few exceptions? |
| 2 | A. Uh-huh. |
| 3 | Q. Later in the paragraph you mention cobalt. I |
| 4 | didn't see any other exceptions. What are the other |
| 5 | exceptions? |
| 6 | A. Well, for this pur for the purposes here, |
| 7 | Labadie uses the Labadie plant uses coal from |
| 8 | Wyoming. It's Powder River Basin coal. |
| 9 | So for the comparison of constituent |
| 10 | concentrations in coal ash derived from the use of |
| 11 | Powder River Basin coal, cobalt is the only constituent |
| 12 | that has a concentration that is slightly is above EPA's |
| 13 | residential soil screening level. |
| 14 | Q. Okay. So you meant here, you're just |
| 15 | referring to cobalt for purposes of this case? |
| 16 | A. Correct. |
| 17 | Q. Okay. And I think you indicate later on in |
| 18 | this paragraph that you base your statement that with |
| 19 | only the exception in this case of cobalt, constituent |
| 20 | concentrations of colace are below screening levels |
| 21 | developed by the USEPA for residential soils. You base |
| 22 | that on a report that you prepared in 2012, in June of |
| 23 | 2012. Is that correct? |
| 24 | A. Yes. |
| 25 | Q. And you mention that report I believe yes. |

Page 280 1 You mention that report in lines 14 to 15 on page 8? 2 Α. Correct. 3 Q. That report looked at concentrations of arsenic and other constituents in coal ash from five 4 5 coal-fired power plants in different parts of the U.S. from different -- burning coal from different regions. 6 7 Correct? 8 Α. Correct. 9 And that was a database, a five plant Q. database, collected by USGS and you analyzed the data 10 from the USGS database? 11 12 Α. Correct. 13 Q. In the course of doing your analysis in your 14 report, you took some, but not all, of the data in the 15 USGS five plant database. Correct? 16 Α. Correct. 17 Q. Okay. So I'm going to -- there -- there's 18 data for fly ash and there is data for bottom ash. I'm 19 just going to focus on the fly ash analyses that you did 20 in your report. 21 Α. Well, that report looked at both fly ash and 22 bottom ash data sets, yes. 23 0. Right. And I'm acknowledging that --24 Okay. Α. 25 -- and I'm saying for questions today I'm Q.

Page 281 1 just going to be focusing on the --2 Α. Fly ash. 3 Q. -- fly ash part of your report and which fly 4 ash samples you used. 5 Α. Correct. 6 So the USGS collected fly ash, and I have --Q. 7 I tell you what, I don't know that we need this as an 8 exhibit, but I'm going to at least mark it, please. JUDGE WOODRUFF: It will be No. 347. 9 10 (INTERVENORS' EXHIBIT NO. 347 WAS MARKED FOR IDENTIFICATION BY THE COURT REPORTER.) 11 12 THE WITNESS: Do I get one too? 13 MS. LIPELES: Yes --14 THE WITNESS: Oh, good. 15 MS. LIPELES: -- as soon as she finishes 16 marking it. 17 THE WITNESS: Thank you. Okay. BY MS. LIPELES: 18 Dr. Bradley, I've handed you excerpts from 19 Q. 20 your report. 21 Α. Uh-huh. 22 Q. It's not the full report, and just the parts 23 that I'm going to be referring to as some of your tables. 24 25 And first in Table 1 you indicate which of

Page 282 1 the USGS data sets you used and which ones you didn't 2 use. Correct? 3 Α. Correct. 4 Q. And so, for example, for the Alaska plant --5 there are five plants here. So there's a plant from Alaska. 6 7 You used material that was actually a 8 combination of fly ash and bottom ash and did not use 9 fly ash samples from the hopper, fly ash before the last 10 ash hopper or fly ash after the boiler. Correct? Correct. 11 Α. 12 The rationale for that was is the purpose of 13 this report was to look at potential beneficial uses of the ash. And we know that for the Alaska plant they 14 put -- they combined the fly ash and bottom ash into one 15 product and that's used for beneficial use. 16 17 Ο. And, in fact, the rationale for all of your data-- data selections in the column on the far right in 18 19 Table 1 says that you -- the ones that you selected 20 were -- you were looking at ash that could be used for 21 beneficial use. Correct? Correct. We looked at the processes of where 22 Α. 23 they collected the ash. 24 Some of these -- just for you to understand, 25 some of these ash samples were taken at points in the

Page 283 power plant process where it would otherwise never see 1 2 the light of day. It would still need to go through the 3 rest of the power plant. But the point -- what USGS was trying to do 4 5 in their data collection effort was to follow trace constituents from the parent coal through the various 6 7 stages of the power plant to the final coal ash, and so 8 that's why there is a range of data that they provide. 9 The fly ash that is generated along the way 0. 10 doesn't get reused in the process, does it? It shows up 11 at some later point. Right? It's a waste material at 12 that point unless it goes for beneficial use? 13 Α. Correct. It moves through the process. 14 Okay. So I just wanted to just to 0. 15 understand, that you selected some, but not all, of the 16 samples and your basis for -- from the USGS data base, 17 you took some samples for your report and you made that decision based on fly ash that could be beneficially 18 19 used? 20 Α. Right. I used all of the data for each set 21 that is provided here. So for the Wyoming plant, which 22 is, of course, of interest here because that's the Powder River Basin coal, they have three data sets, 23 bottom ash, economizer fly ash and then the fly ash. 24 25 And you used the --Q.

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Page 284 1 Α. And we used the bottom ash --2 -- bottom ash --Q. 3 Α. -- and the fly ash. 4 Q. -- and the fly ash but not the economizer fly 5 ash? 6 But all of the data that was available for Α. 7 the fly ash, I used all of that data. 8 Q. So wherever you have an X, you used all of 9 that data and wherever --10 Α. Correct. 11 -- it's open, you did not use that data? Q. 12 Α. Correct. 13 Q. Okay. And ash that's not beneficially used, 14 for whatever reason, has to be disposed of in a pond or a landfill. Correct? 15 It's likely that that goes for disposal. 16 Α. 17 And let me just say, these determinations here, I do not know -- other than the Alaska power 18 plant, I don't know what these power plants are, so we 19 had to make an educated decision about what data to look 20 21 at. And so I don't know, in fact, if these are 22 the data sets used for beneficial use and what happens 23 24 to the other material at these plants. 25 I understand. I just wanted to make sure Q.

Page 285 1 that I understood correctly from reading Table 1 that 2 you took some of the data but not all of the data that 3 the USGS had available for fly ash. Α. Correct. 4 5 And you said in your testimony just now and Q. you said in your prefiled testimony that you selected 6 7 the Wyoming plant out of the five USGS plants because it 8 burns Powder River Basin coal and that's the kind of 9 coal that Labadie burns. Correct? 10 Correct. Α. 11 When you say the same time -- type of Q. 12 coal -- oh. So you said Powder River Basin. Sorry. I'm a little ahead of myself here. 13 14 The Powder River Basin covers more than 25,000 square miles over three states, does it not? 15 I don't know how big that province is but 16 Α. 17 that would not surprise me. 18 Okay. And it contains several different coal Q. zones and coal beds, does it not? 19 20 Α. It may well. 21 Q. Are you familiar with the USEPA report 22 entitled -- this is a long one -- Characterization of 23 Coal Combustion Residues from Electric Utilities, 24 Leaching and Characterization Data? 25 Α. I am familiar with that title. I have to say

Page 286 that right now I probably don't have a working knowledge 1 2 of what's in that report at this point. 3 Q. Okay. But you looked at it at some point? Α. I believe so. 4 5 Okay. And do you recall that the EPA Q. reported no correlation between the source of the coal 6 7 and concentrations of arsenic in that coal? Well, that would surprise me. 8 Α. MS. LIPELES: Okay. I'd like to mark this 9 10 Exhibit 348. JUDGE WOODRUFF: Yes, it would be 348. 11 12 (INTERVENORS' EXHIBIT NO. 348 WAS MARKED FOR IDENTIFICATION BY THE COURT REPORTER.) 13 14 BY MS. LIPELES: 15 Okay. Dr. Bradley, what's been marked as Q. 16 Exhibit 348 is excerpts from this very long EPA report, 17 and I'd like you to direct your attention to page 54, the bottom of 54, going on to 55, where with respect to 18 19 arsenic the EPA says there was no clear effect of coal 20 type at the high-level categorization based on coal rank 21 and region on arsenic content in CCRs, although coal 22 from within a region has been observed to have 23 considerable variability with respect to trace element total content. 24 25 Is that what that says?

Page 287 That is. 1 Α. 2 MR. TRIPP: I'm sorry. Go ahead. 3 I was going to object, Your Honor. I'm She jumped in. 4 sorry. 5 Without the context and without this witness 6 stating that she has a working knowledge of the report, 7 I am just going to object that there is lack of foundation for the question. 8 9 Other than -- I know she just asked what did it say, but the very fact that it's now in the record is 10 the basis for my objection. 11 12 JUDGE WOODRUFF: I'm going to overrule the 13 objection. 14 BY MS. LIPELES: 15 Dr. Bradley, in Schedule 10 that you filed Q. 16 with your testimony, you cite a report from the Electric 17 Power Research Institute, or EPRI --Uh-huh. 18 Α. 19 -- which you reference as Report No. 1020556. Q. It's referenced on Schedule 10. 20 21 Α. Correct. 22 Q. And I believe that's a report entitled 23 Comparison of Coal Combustion Products to Other 24 Materials and it's published in 2010. 25 Α. Yes.

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Page 288 1 0. Does that sound right? 2 Α. Yes. 3 Q. In addition to testing for the concentrations 4 of various constituents in soil, which is what you use 5 it for, the EPRI report also tested constituents in fly ash from 59 different power plants. Correct? 6 7 Α. Correct. 8 Q. And that data is reflected in Table 2-1 of 9 the EPRI report. Correct? 10 Α. Correct. 11 MS. LIPELES: Okay. And I'd like to mark 12 this as Exhibit 349. 13 JUDGE WOODRUFF: Thank you. 14 (INTERVENORS' EXHIBIT NO. 349 WAS MARKED FOR 15 IDENTIFICATION BY THE COURT REPORTER.) BY MS. LIPELES: 16 17 Q. Okay. So we're going to come back to Table 2-1 in a little bit. That's where EPRI reports 18 19 data for different constituents from this 59 plant data 20 set. 21 But I also wanted to note some of the 22 comments in the EPRI report. For example, at page 4-1, 23 which is the last page of this excerpt -- first I didn't 24 ask you, does this -- is the report -- is this excerpts 25 from the report that you reference in Schedule 10?

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Page 289 1 Α. Yes. Yes. 2 And on page 4-1 EPRI explains why it used a Q. 3 database from USGS from 1984 rather than a database from 2005. 4 5 So one would have thought that the more recent database would have been the better one to use 6 7 but EPRI explained why it was using the older data base 8 from 1984. 9 And EPRI said, quote, the benefits of using USGS 1984 as the primary data set are the study sampled 10 11 more sites, 1,323, than USGS 2005, which was 265 sites. 12 More data provide greater confidence for 13 calculations and it is more likely that the data set 14 will capture the total concentration range for a 15 particular element. 16 For example, the highest arsenic 17 concentration in the U.S. 2005 data set is 23 milligrams per kilogram compared to 97 milligrams per kilogram in 18 19 the USGS 1984 study. Is that correct? 20 That's correct. Α. 21 You do realize they're referring to USGS study on background soils? 22 Okay. But --23 0. 24 This is not -- I just -- I want everyone who Α. is listening to you say the numbers, that EPRI is 25

Page 290 talking about which USGS background data set they 1 2 selected for their comparisons. 3 Ο. I understand that. Okay. Good. 4 Α. 5 And I was using it in terms of just the Q. concept of a bigger data set -- according to EPRI a 6 7 bigger data set is going to get you better information 8 than a smaller data set. Well, I -- I would say from a statistical 9 Α. standpoint that would be correct if you've sampled all 10 11 potential populations evenly. We don't actually know 12 from the EPRI data set if it's skewed to one type of 13 coal province or another. That information isn't 14 available. 15 So I would just caution you that more data is not necessarily always better. It's the underlying data 16 17 that you need to review before making that decision. Okay. But if EPA is correct, with respect to 18 Q. 19 arsenic it doesn't really matter where it comes from. 20 There doesn't seem to -- according to EPA there is not a 21 correlation as to where it comes from? According to that data set, but I'm not sure 22 Α. 23 I entirely agree with that statement. 24 Q. Okay. And then also on page 2-1, EPRI made 25 the same point. And then at the very bottom, in many

Page 291 1 studies multiple CCP -- the coal combustion products, 2 multiple CCP sample analyses originate from a single 3 power plant. This created the potential for biasing the 4 data set, overweighting results produced from a single 5 plant. 6 Is that correct? 7 Α. That's correct. Okay. Now, in your Schedule 9 --8 Q. 9 But can I just say that the reason EPRI said Α. that is that in their large data set of -- of coal ash 10 data, there were some samples from a given power plant. 11 12 And so maybe they had 50 samples from one power plant, 10 from another, 5 from another. 13 14 And they wanted to make sure that they did not unrealistically bias the data to the data that was 15 representative of the 50 samples. 16 17 So what they did in their database is took an average of the 50 samples from this power plant, the 18 average of the 10 samples from this power plant, the 19 average of the 5 over here, so that they're comparing 20 21 apples to apples to the best that they can in that data 22 base. 23 Q. Okay. Thank you. 24 I'd now -- I'd now like to look for a little 25 bit at Schedule 9 attached to your testimony.

Page 292 1 Α. Yes. 2 And in this schedule you compare the Q. 3 concentrations of arsenic in the fly ash in the Wyoming 4 coal plant that you took out of the USGS data set --5 Α. Uh-huh. -- with the USEPA's regional screening levels 6 Q. 7 for residential soils. Correct? 8 Δ Yes. Regional screening levels based on the 9 three different target risk levels that EPA has in their superfund regulations. 10 11 Okay. But this is -- okay. Q. 12 So in your Schedule 9, the legend in the 13 lower left says that the top of the green bar 14 corresponds -- or it says top of bar but it's next to 15 the green --The green, right. I have a black and white 16 Α. 17 version here but yeah. The legend in the lower left says the top of 18 Q. 19 the bar corresponds to the USEPA regional screening level for soil. Correct? 20 21 Α. Correct. 22 Q. And you provided -- in Schedule 7 you 23 provided what looks like a download of what was then the 24 EPA updates used periodically, but I don't think the 25 arsenic numbers have changed and that's what we're going

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Page 293 1 to look at. 2 Α. Yes. 3 Q. You -- you downloaded the then current EPA's tables with all of the regional screening levels, and 4 5 that's presented in Schedule 7 with your -- with your prefiled testimony? 6 7 Α. Correct. And you do note that there's a footnote under 8 9 arsenic on this table that further explains the values 10 for arsenic. 11 I'm going to get to that. Q. 12 Α. Okay. Great. 13 Α. Thank you very much. 14 Α. Uh-huh. 15 The USEPA's regional screening levels are Q. based on a one in a million or one times ten to the 16 17 minus six risk level for carcinogens. Correct? 18 For potential carcinogens, yes. Α. 19 Q. Okay. And arsenic is classified by the USEPA 20 as a carcinogen for the oral route of exposure? 21 Α. Correct. So EPA's RSL, regional screening level, for 22 Q. arsenic in residential soil as reflected in 23 24 Schedule 7 is 0.61 milligrams per kilogram. Is that 25 correct?

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Page 294 Right, at the one in a million cancer risk 1 Α. 2 level. 3 Q. At the one in a million cancer risk level. 4 And as you explain in a footnote, your 5 Schedule 9, the top of your green bar is not .61 but it's 100 times that, it's 61 --6 7 Α. Correct. 8 Q. -- because you decided to use a one times --9 or you -- a one in -- one in 10,000 risk level instead of the one --10 I -- I did not decide --11 Α. 12 Q. Excuse me. Just let me finish the 13 question --14 Α. Okay. 15 Q. -- and then you give your answer. 16 That you -- your footnote indicates that you 17 used at the top of your green bar a risk level of one in 10,000 instead of the EPA's risk level of one in a 18 19 million? What I did is I provided the screening levels 20 Α. 21 at all three risk levels with-- within EPA's target risk 22 range. 23 So the lower white bar is the screening level 24 at a one in a million risk level. I've also provided at the middle white bar the screening level at a one in 25

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| | Page 295 |
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| 1 | 100,000 risk level, and then the top of the green bar is |
| 2 | the screening level at a one in 10,000 risk level. |
| 3 | So EPA regulates under the superfund program |
| 4 | risks potential carcinogenic risks within this target |
| 5 | risk range of one in a million to one in 10,000. |
| 6 | Q. Okay. But the number on EPA's chart, which |
| 7 | is your Schedule 7 for arsenic for residential soil, is |
| 8 | .61 and the top of your green bar I realize the |
| 9 | footnotes explain, but the top of your green bar is 100 |
| 10 | times that, is 61? |
| 11 | A. Correct. |
| 12 | However, you have to look at EPA's technical |
| 13 | background document for these screening levels, where |
| 14 | they explain that one can then derive screening levels |
| 15 | for the various other target risk ranges by multiplying |
| 16 | by 10 or 100. |
| 17 | This table is very large. There are over |
| 18 | 750 chemicals on this table. However, for EPA's vapor |
| 19 | intrusion guidance document, where they have a much |
| 20 | smaller world of chemicals, there might be I don't |
| 21 | know 80 on that table. |
| 22 | They actually provide three separate tables |
| 23 | in that guidance document, one for screening levels |
| 24 | based on one in a million risk level, one for screening |
| 25 | levels based on one in 100,000 risk level and one for |

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| 1 | screening levels based on a one in 10,000 target risk |
| 2 | level. |
| 3 | So that's consistent with EPA's guidance. |
| 4 | It's just unwieldy for them to do that with |
| 5 | 750 chemicals on this table, but their technical |
| 6 | background guidance document that goes with this |
| 7 | explains how to do that. |
| 8 | Q. And we're not talking about vapor intrusion |
| 9 | exposures here, are we? |
| 10 | A. No, but we're talking about EPA guidance and |
| 11 | the fact that there is another example for how they |
| 12 | apply this target risk range, and they explain that in |
| 13 | this the technical background document here. |
| 14 | That is what one would do to derive screening |
| 15 | levels at this of these other various target risk |
| 16 | levels. |
| 17 | Q. I understand for different purposes, but I'm |
| 18 | just saying that the number on EPA's table is different |
| 19 | from the top of your green bar? |
| 20 | A. It is but it's consistent with the lower |
| 21 | white bar. |
| 22 | Q. Okay. |
| 23 | A. Okay? |
| 24 | Q. And it's consistent with the lower white bar. |
| 25 | Okay. |

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| 1 | So now what I'd like to do is look at the |
| 2 | arsenic concentrations, which is the purple band on your |
| 3 | Schedule 9, and there you say concentration range, 10th |
| 4 | to the 90th percentile in Wyoming fly ash? |
| 5 | A. Correct. |
| 6 | Q. And that's the purple band. |
| 7 | And I'd like to just focus for now on the |
| 8 | arsenic. |
| 9 | A. Uh-huh. |
| 10 | Q. And so the numbers that are in that are |
| 11 | that go into the what is on your purple band in |
| 12 | Schedule 9 are from Table 7 of your report. Correct? |
| 13 | And that's |
| 14 | A. Of this report. |
| 15 | Q from your 2012 Coal Ash Material Safety |
| 16 | report? |
| 17 | A. You've provided that here, yes. |
| 18 | Q. Where it's Table 7, Summary Statistics |
| 19 | Wyoming Power Plant Fly Ash? |
| 20 | A. Uh-huh. |
| 21 | Q. And you have a 90th percentile and |
| 22 | 10th percentile and that's what the green that's what |
| 23 | the purple bar reflects on Schedule 9? |
| 24 | A. Correct. |
| 25 | Q. I'd now like to compare that with the arsenic |

Page 298 1 levels in the five plants that were in the USGS data set 2 and also the 59 plants that EPRI looked at. 3 Α. Right. And I have a visual aid in doing that. 4 Q. 5 Α. Is all of that showing? 6 No. I'm trying to --Q. 7 Α. Okay. 8 Q. I'm trying to unzoom it. 9 MS. HUBERTZ: I can get it to zoom it but I don't promise I can unzoom it. 10 BY MS. LIPELES: 11 12 So just to help our -- explain where -- this Q. is all based on numbers from your -- from the documents 13 14 we've been discussing. 15 So we have three pairs of green bars, and in each set the bar on the left is the number from the 16 17 EPA's Table 7, from -- from EPA's chart, which is your 18 Schedule 7. 19 For the one in a million, correct. Α. 20 Q. The one in a million risk or .61. 21 And the -- the green bars to -- on the right 22 of each pair are the ones from your Schedule 9 showing 23 one in 10 million up to -- one in 10,000 up to one in a million? 24 25 Α. Correct.

Page 299 1 0. And then the purple bar on the left is the 2 range for the -- the 10 to 90 percentile arsenic ranges 3 for the Wyoming coal plant as shown in Table 7 of your 4 report? 5 Α. Correct. 6 Q. Okay. And then if you look at Table 11 from 7 your report, this has data compiled from the five plants 8 in the USGS database that you used for your report. In 9 there the arsenic numbers -- the arsenic range is 10 larger. 11 It goes from -- just in terms of, like, the 12 actual numbers, the 10 to 90 percentile range from 13 Table 1 was 17.22 to 20.9 milligrams per kilogram. 14 And to compare in -- for the five plants, the 15 10 to 90 percent range is 14.55 to 57.95 milligrams per 16 kilogram. And so you can see the bar is fatter. 17 Α. That's correct. That was in the report. 18 Okay. And I'm just -- just showing that's Q. what is depicted in the middle pair of the two bars. 19 20 Α. But you can see -- if I can just point out, 21 you can see that that -- the upper end of that range is just a tiny bit above the green, because you haven't --22 you've shown them superimposed. The green is -- is --23 is about that same level. 24 25 Q. Okay.

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Page 300 Α. In fact, it's --1 2 It's about the same level --Q. 3 Α. -- it's -- the green is a little higher in 4 that one. 5 Okay. On the --Q. 6 Just so that you-all under--Α. 7 On the top --Q. 8 Α. -- can see that. 9 You're talking about -- we're talking now Q. about the middle pair of -- of bars for the five plants? 10 Α. Uh-huh. 11 12 And you're talking about the one on the right Q. 13 which shows the numbers that you used on Schedule 9 which has the one in 10,000 --14 15 Target risk level. Α. 16 Q. -- to one in a million? 17 And so if you used the one in a million range, which is where the white -- the first white space 18 is towards the bottom, the arsenic concentrations are 19 20 well above that? 21 Α. Oh, yes. 22 Q. I think your point was if you use the one in 23 10,000, the arsenic ranges are within the EPA's levels? Correct. 24 Α. 25 And then in the right pair of bars we have Q.

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| 1 | the data the arsenic concentrations from the EPRI |
| 2 | report and this is Table 2-1 in the EPRI report |
| 3 | and their range was considerably larger. Their range |
| 4 | for the 10 to 90 percent concentrations of arsenic for |
| 5 | 59 plants was 22 to 261? |
| 6 | A. Correct. |
| 7 | Q. And so we have a fatter blue bar, and, as you |
| 8 | would point out |
| 9 | A. I'm not sure where the |
| 10 | Q on the right I think it's just the way |
| 11 | it came out. |
| 12 | A. The blue bar is behind the green |
| 13 | Q. Right. |
| 14 | A bar on that one. |
| 15 | Q. Right. |
| 16 | A. There is also a nice schedule in this I |
| 17 | believe in the AECOM report for ACAA no, it's not. |
| 18 | But I but I have done I have taken |
| 19 | EPRI's figure that they have in their report that |
| 20 | compares their range of concentrations and for the |
| 21 | various constituents in coal ash that is very similar |
| 22 | to to this schedule, but they also plot the then |
| 23 | current EPA regional screening levels with blue dots. |
| 24 | And I have a similar presentation of that |
| 25 | data where I've also added the blue dots for the one in |

Page 302 10,000 and the one in 100,000. 1 2 Α. I'm just focusing on what you submitted as 3 testimony in this case and looking --Well, that's fine, but you opened --4 Α. 5 -- at the different data sets --Q. -- so I thought I could talk about it. 6 Α. 7 Q. Well, in looking at -- depending on what data 8 you select, you get different concentrations of arsenic 9 in the fly ash? 10 Α. Right. 11 However, I would like to say that even though 12 each power plant is -- is specifically different, all of 13 the power plants taken together and the data that -that USGS has and the data that EPRI have and data that 14 15 I have seen in my own professional experience, consen-constituent concentrations in coal ash are fairly 16 17 consistent. We don't have some odd ball outliers. It does look like fly ash -- or fly ash that 18 is from coal from the Appalachian province can have 19 higher concentrations of arsenic, but in general all of 20 21 these ashes look very much the same in terms of constituent concentrations. 22 23 Well, it depends what you mean by very much Q. 24 the same. I mean, the 90th percentile range in your --25 for the Wyoming plant was 20.9. The 90th percentile

Page 303 1 range for the five plant database that USGS compiled 2 that you used for -- for your report is 57.95, and the 3 90th percentile for the 59 plants in the EPRI database is 261. 4 5 So that's a fairly significant range when you're talking about a substance that can be harmful in 6 7 small amounts. 8 Α. It's a larger range. 9 My -- my concern with the EPRI data is that I don't know where those power plants are located. So I 10 don't know that it might be biased towards data from 11 12 plants that are using Appalachian coal. I -- I -- I 13 don't know that, so --14 Q. There's a lot of things you don't know. You also don't know what kind of air pollution control 15 16 equipment they're using or not using, so you don't 17 really know what the consti-- what -- what they're 18 trapping versus what is going out into the air. 19 So if they don't trap it in their pollution 20 control, it's not in the fly ash; it goes out into the 21 air and it's not reflected. 22 So there are a lot of things that go --Yeah, there are a lot of uncertainties. 23 Α. 24 Q. Okay. 25 For your Schedule 9 you used a log-- a

Page 304 1 logarithmic scale --2 Α. Uh-huh. 3 Ο. -- and I just want to take a look at what some of these differences would look at on a nonlog 4 5 scale. 6 So the log scale, the vertical access, each 7 bar go-- each row goes up by an order of magnitude? Uh-huh. 8 Α. 9 0. Not so in this. This just uses real numbers 10 and it goes up. And you can see -- you can barely see 11 the USEPA one in a million green bar is at the very 12 bottom. I can -- I can try to zoom. I can see it. 13 Α. 14 Q. Okay. Is at the very bottom of the left of 15 the two pairs, and you can see the differences between these various levels are more magnified in this scale as 16 17 opposed to the logarithmic scale that you used in your Schedule 9. Correct? 18 19 I'm going to have to take your word for it. Α. A, I can't read this. It's very fuzzy. I would have to 20 21 check it before I would make -- a QA before I would actually have anything to say about it. 22 23 But I -- but I do understand your point that 24 there's a difference between a log scale and a logarithmic scale. 25

Page 305 1 0. And -- and the difference in a display is 2 that the differences are compressed in a log scale 3 versus larger in a nonlog scale? Α. But we have a wide range here. We have a 4 5 wide range of -- of screening levels, and we wanted to be able to portray that all on a single graph. 6 7 I understand. But I just -- I just want to Q. 8 point out --9 Α. Yeah. 10 -- what happens when you do use a log scale. Q. 11 Returning to Schedule 7, which is the EPA's 12 regional screening levels --13 Α. Will -- will we get a copy of this so that we 14 can check it? 15 Q. Oh. Actually, yes. 16 JUDGE WOODRUFF: Do you want to go ahead and 17 mark --18 THE WITNESS: Because I think that would be 19 important. 20 JUDGE WOODRUFF: -- it as an exhibit? 21 MS. LIPELES: That would be great. 22 I'm sorry. I know I have this. 23 I'm sorry. I don't want to take everyone's 24 time finding this. I'm sure that I had them with me. 25 I can give you my copy for you to look at, if

Page 306 we can mark that, and then I can get copies. 1 2 JUDGE WOODRUFF: Okay. 3 THE WITNESS: Not right now. I'm not going to check it now. 4 5 MS. LIPELES: No. I understand that. 6 JUDGE WOODRUFF: We need to mark it now. 7 MS. LIPELES: Let's mark -- let's mark them and I'll get copies if I can't find them. 8 9 THE WITNESS: As to Steve's point of doing math in your head in front of a room. 10 JUDGE WOODRUFF: Are you going to mark both 11 12 charts as 350? MS. LIPELES: Sure. 13 14 Well, actually, why don't we do the first one as 350 and the second --15 16 THE COURT REPORTER: The first one being this one? Which one is --17 MS. LIPELES: No. 18 19 THE COURT REPORTER: This one? 20 MS. LIPELES: This is the log scale. 21 JUDGE WOODRUFF: All right. So 350 is the logarithmic scale and 351 is the arithmic scale? 22 23 MS. LIPELES: Yes. 24 JUDGE WOODRUFF: Okay. 25 (INTEVENORS' EXHIBIT NOS. 350 AND 351 WERE

Page 307 MARKED FOR IDENTIFICATION BY THE COURT REPORTER.) 1 2 BY MS. LIPELES: 3 Q. Okay. So returning to your Schedule 7, which 4 is the EPA's regional screening levels. 5 Α. Yes, the table. And I think you were explaining that EPA 6 Q. 7 uses -- has regional screening levels for a variety of 8 different settings and the one that you used --9 Α. Correct. 10 -- was from the -- the left, the screening Q. for residential soil? 11 12 Α. For residential soil. 13 So -- just so you understand what goes into the development of those screening levels, this assumes 14 15 that a child, an adult can be exposed to soil in a residential setting on a daily basis. That's 350 days a 16 17 year. It's assumed they incidentally ingest soil on a daily basis, dermally contact it, as well as it -- it 18 includes inhalation of fugitive dusts. 19 20 And the -- on the far right the EPA has Q. 21 regional screening levels for purposes of protection of 22 groundwater --23 Α. Correct. 24 Q. -- correct? 25 And those levels actually for arsenic are a

Page 308 1 fair amount lower than the screening levels for 2 residential soil. 3 So, for example, the residential soil level 4 is .61 milligrams per kilogram, while the risk base 5 level for groundwater protection is .0013 milligrams per kilogram, or 1.3 times -- to the minus -- E to the minus 6 7 three, and the Federal drinking water standard level is 8 0.29. 9 So those -- if you had used the screening 10 levels for groundwater or for drinking water, those 11 numbers would have been considerably lower than the 12 number for residential soil? 13 Α. And there is specific reasons that I did not use those numbers, in that there's a lot of uncertainty 14 in that extrapolation from -- and we call these soil to 15 groundwater screening levels. 16 17 There's a lot of uncertainty in that extrapolation as to how arsenic or any of these 18 constituents would behave in the subsurface, and as a 19 general course we don't rely on these numbers for risk-20 21 based evaluations. 22 0. Okay. But I just want to understand. You 23 put together Schedule 9. I'm trying to understand what went into it and what decisions were made --24 25 So my decision for --Α.

Page 309 1 0. -- in presenting Schedule 9. 2 Α. -- Schedule 9 was to look specifically at 3 potential direct contact. So it's actually assuming one's house -- the 4 5 soils at one's house has actually been completely replaced by fly ash for -- that's what that screening 6 7 means. It's not that anything would do that but that's 8 the assumption behind that screening exercise. 9 0. Okay. But it's not looking at what would 10 happen if arsenic from fly ash got into somebody's 11 groundwater and they were consuming arsenic contaminated 12 groundwater? 13 Α. No, it's not looking at that. It's not meant to. And that's actually not the way we would do it 14 15 would be to use these soil screening levels. 16 Q. Okay. I'd now like -- I think you said that 17 arsenic is classified by EPA as a human carcinogen for the oral route of exposure. I also -- I assume you're 18 19 also aware that U.S. Department of Health and Human 20 Services and the International Agency for Research on 21 Cancer have also found inorganic arsenic to be a human 22 carcinogen. Is that correct? 23 Α. Correct. 24 I'd like to direct your attention now to 0. 25 Schedule 13 filed with your prefiled testimony.

Page 310 1 And this is a memorandum from you to Ameren 2 Missouri entitled Review of Groundwater Analytical Data 3 Collected in the Vicinity of the Proposed Utility Waste Landfill for the Ameren Missouri Labadie Energy Center. 4 5 Correct? 6 A. Correct. 7 And appended to it you show, among other Q. 8 things, the results of the first two rounds of 9 groundwater monitoring at the proposed Labadie landfill site, one in April 2013 and that's labeled Table 2 --10 Α. Uh-huh. 11 12 Q. -- and one in August of 2013 and that's labeled Table 3. Is that correct? 13 14 Α. Correct. 15 Since then you've also reviewed the results Q. 16 of a third sampling event conducted in November 2013. 17 Correct? 18 Α. Correct. 19 MS. LIPELES: I'd like this marked as 352, if that's the next number. 20 JUDGE WOODRUFF: That will be the next 21 22 number, yes. (INTERVENORS' EXHIBIT NO. 352 WAS MARKED FOR 23 IDENTIFICATION BY THE COURT REPORTER.) 24 BY MS. LIPELES: 25

Page 311 1 0. Dr. Bradley, are you familiar with what's 2 been marked as Exhibit 352? 3 Α. Yes. THE WITNESS: Maybe you should just give --4 5 you should give it to me anyway. 6 MS. LIPELES: Oh, I'm sorry. I thought you 7 did. THE WITNESS: Oh, no. She was going to and I 8 said I had it but now you're calling it by the number, 9 so I want to make sure. 10 BY MS. LIPELES: 11 12 Q. And you -- you prepared this table. Correct? Correct. 13 Α. 14 MS. LIPELES: I'd like to move this into evidence. 15 JUDGE WOODRUFF: 352 has been offered. 16 17 Any objections to its receipt? Hearing none it will be received. 18 (INTERVENORS' EXHIBIT NO. 352 WAS RECEIVED 19 INTO EVIDENCE.) 20 21 BY MS. LIPELES: 22 Q. Okay. So now I'd like you to look at all three tables --23 24 Uh-huh. Α. -- the April, August and November groundwater 25 Q.

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| 1 | monitoring results at the proposed landfill site. |
| 2 | And you marked in yellow any results that are |
| 3 | above the Federal safe drinking water level, and that's |
| 4 | referred to as the MCL. It's called the Maximum |
| 5 | Contaminant Level. That's the level that EPA sets under |
| 6 | the Safe Drinking Water Act. Correct? |
| 7 | A. Right. And they they actually represent |
| 8 | either the MCL or the SMCL, so Secondary Maximum |
| 9 | Contaminant Level. |
| 10 | Q. And then the blue bars also show exceedances |
| 11 | of the MCL because they they show greater than both |
| 12 | the MCL and the regional screening level. Correct? |
| 13 | A. For drinking water, correct. |
| 14 | Q. Okay. So anything that is yellow or blue are |
| 15 | numbers above the Federal drinking water standard and |
| 16 | anything that is green is above the EPA's regional |
| 17 | screening levels, which are the numbers we were just |
| 18 | talking about in Schedule 7. Correct? |
| 19 | A. Correct. |
| 20 | Q. And those are using the RSLs for residential |
| 21 | soil or for groundwater? |
| 22 | A. It's a drinking water pathway, so it's a |
| 23 | residential the regional screening level for drinking |
| 24 | water. Tap water is what they call it in the tables. |
| 25 | Q. Okay. Thank you. |

Page 313 1 So looking at the -- starting with the April 2 results, which is Table 2, and just looking at the 3 arsenic. Can you read the numbers that are in blue? Let's look at -- let's just for now look at 4 5 the blue. Anything in blue is above the safe drinking water standard. 6 7 And what are the num-- what are the arsenic 8 numbers? 9 Oh, wait. Before you start that. 10 The Federal safe drinking water standard for 11 arsenic is ten micrograms per liter. Correct? 12 Α. Correct. 13 Q. Okay. And these -- and your results are 14 presented here also in micrograms per liter? 15 Α. Correct. So what are the numbers in the blue boxes --16 Q. 17 and I understand where there is green we're not talking about it or there are blank boxes which presumably 18 19 showed no arsenic? 20 Α. Correct. 21 So just the ones that did show arsenic above Q. 22 the safe drinking water standard, what are the numbers 23 from April in Table 2 attached to Schedule 13? 24 So there were eight results in -- in April, Α. 25 which I have to say is the highest of the three rounds.

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| 1 | 22.1, 29.5, 66.6, 13.3, 26.4, 12.5, 45.7, 29.5. |
| 2 | Q. Okay. And what are the numbers from August |
| 3 | that is in Table 3 attached to your Schedule 13 in the |
| 4 | blue boxes? |
| 5 | A. So there are two only two constituents in |
| 6 | the August sampling rounds that are above the MCL |
| 7 | Q. Excuse me. You said two constituents. Do |
| 8 | you mean two samples? |
| 9 | A. Oh, I'm sorry. Two results. Two results. |
| 10 | Yes. Thank you. Thank you for catching |
| 11 | that. |
| 12 | 18.9 is one and 16.1. |
| 13 | Q. And for the November, the blue boxes? |
| 14 | A. For November there were two, 49.9 and 26.2, |
| 15 | out of a total of 29 wells. So that number has gone |
| 16 | down from the original sampling round. |
| 17 | Q. Okay. There's a range? |
| 18 | A. There's a range. |
| 19 | Q. Okay. |
| 20 | A. But I have to say, let's just keep in mind, |
| 21 | even though we say that there's a range, with |
| 22 | groundwater sampling it's important to take the temporal |
| 23 | timeframe into into consideration. |
| 24 | Q. And just to really |
| 25 | A. That those are different. |

Page 315 THE COURT REPORTER: I'm sorry. What did you 1 2 say? 3 THE WITNESS: It's important to take into account the temporal timeframe of when the samples were 4 5 collected. BY MS. LIPELES: 6 7 Okay. And these are just -- these are just Q. 8 snapshots in time at this point. Correct? The DNR I 9 think has required Ameren to collect eight rounds of 10 samples, and this is just the first three? This is the first three rounds, correct. 11 Α. 12 0. So we don't know what the whole picture is 13 going to look like; this is just what we've see in the 14 first three? Uh-huh. 15 Α. 16 Q. So it's a little premature to make 17 conclusions about what it shows and what it doesn't 18 show? 19 No. I think we can still make conclusions, Α. but we will make more conclusions at the end of the 20 21 sampling. 22 Q. Okay. 23 JUDGE WOODRUFF: Before you move on to 24 something else, I have a question --a clarifying question about the exhibit. 25

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| 1 | The copy of 352 that I have has only the |
| 2 | November 2013 sampling event. |
| 3 | MS. LIPELES: Correct. The other two are |
| 4 | attached to Schedule 13 that she submitted with her |
| 5 | prefiled testimony, and the November was available after |
| 6 | that. |
| 7 | JUDGE WOODRUFF: Okay. Thank you for that |
| 8 | clarification. I just wanted to make sure we weren't |
| 9 | missing something. |
| 10 | BY MS. LIPELES: |
| 11 | Q. The results in these tables also show Federal |
| 12 | drinking water standards for TDS, which is total |
| 13 | dissolved solids, aluminum, iron, manganese and |
| 14 | selenium. Correct? |
| 15 | A. Correct. |
| 16 | Q. Now, in Schedule 13 you offer some |
| 17 | conclusions. One on page 3. |
| 18 | In the first paragraph there, is that the |
| 19 | presence of iron, manganese and arsenic above screening |
| 20 | levels at the proposed UWL site is attributed to the GO |
| 21 | chemical conditions of the aquifer. Is that correct? |
| 22 | A. Correct. |
| 23 | Q. And in the next paragraph the only aquifer |
| 24 | you talk about is the Ozark aquifer. Correct? |
| 25 | A. In that paragraph, yes. |

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Page 317 1 0. Okay. 2 Α. I'm talking --3 Well, in your -- in your first paragraph you Q. 4 don't qualify what ar-- what aquifer you're talking 5 about. 6 Let me just read through this to see. Α. 7 No, but I suppose it's inferred in that we -our data are from the alluvial aquifer --8 9 0. Okay. -- not from the Ozark. 10 Α. 11 So you're saying that these level -- that Q. 12 it's attributed to the GO chemical conditions of the 13 alluvial aquifer? 14 Α. Correct. 15 Q. And so you would expect to see these kinds of levels in alluvial aquifer data? 16 17 Α. They're not surprising to me, no. Okay. And then --18 Q. 19 I think it's also important if we're going to Α. talk about the groundwater here, and you've -- you've 20 21 asked about these various constituents, we're also looking at if -- if we want to look at potential impact 22 of Labadie's ash management facilities on the 23 24 groundwater, we need to also look at the sulfate and borin concentrations because sulfate and borin are --25

| | Page 318 |
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| 1 | are indicators of a potential release from coal ash |
| 2 | management facilities. |
| 3 | Q. And I think you you said that in your |
| 4 | schedule. I'm just asking about some other aspects, |
| 5 | some of your conclusions here. |
| 6 | A. I just think it's important to bring that up |
| 7 | to keep this all in context, so we should come back to |
| 8 | the borin and the sulfate. |
| 9 | Q. Well, your lawyer can come back. |
| 10 | A. I think so anyway. |
| 11 | Q. In your summary on page 4 you say this |
| 12 | evaluation of data from the shallow monitoring wells at |
| 13 | the proposed UWL site indicates that while |
| 14 | concentrations of arsenic, iron and manganese and TDS |
| 15 | are above drinking water standards, these data represent |
| 16 | natural conditions for the area. |
| 17 | And I assume from there you're saying the |
| 18 | alluvial aquifer or are you talking about the bedrock |
| 19 | aquifer? |
| 20 | A. The alluvial aquifer. This is entirely the |
| 21 | alluvial aquifer. |
| 22 | Q. Are you familiar with the USGS database on |
| 23 | water quality sampling results known as the National |
| 24 | Water Information System? |
| 25 | A. I believe so |

Page 319 1 Q. Did you --2 Α. -- but I can't --3 Did you consult the USGS database, National Q. 4 Water Information System, to see what concentrations of 5 arsenic are found in alluvial groundwater in Franklin County or in nearby counties? 6 7 Α. I did not. I -- I did consult their 2011 8 report, which I think is a summary of all of their data. MS. LIPELES: I'd like to mark this as 353. 9 JUDGE WOODRUFF: Correct. 10 (INTERVENORS' EXHIBIT NO. 353 WAS MARKED FOR 11 12 IDENTIFICATION BY THE COURT REPORTER.) BY MS. LIPELES: 13 14 Dr. Bradley, does this look like the National Q. Water Information System web page that you might have 15 consulted from time to time? 16 17 Α. Yep, it looks like it's from USGS. 18 And I'd like to start with -- I found one Q. 19 result for arsenic in Franklin County in the alluvial 20 aquifer. You can define your search --21 Α. That starts on the second page here? 22 0. So the search was for alluvial aquifer in 23 Missouri for arsenic, and it's on page -- what says 96 24 out of 103. This was for -- of the whole state and I 25 took the data from Franklin County and the nearby

Page 320 1 counties. 2 Α. So -- because I don't know what that means. 3 Q. On the bottom right it says 96/103, the bottom right of the page. 4 5 Α. I have a two and a three. 6 Some of the earlier ones were from Ο. 7 St. Charles County. We'll come back to that. 8 MR. WILLIAMS: The third page from the back. 9 THE WITNESS: Ten. 10 MR. WILLIAMS: The third page from the back. THE WITNESS: Sorry. 102, 101, 97, 96. Got 11 12 it. BY MS. LIPELES: 13 14 Okay. So it says this well is completed in Q. the alluvial aquifer. Correct? 15 16 This is in Franklin County. It's in 17 New Haven, Franklin County. 18 On the next page it tells you the arsenic 19 concentrations they found in the alluvial aquifer. In 20 2000 they found 2.9 micrograms per liter and in 2002 21 they found 5 micrograms per liter. 22 Correct. Α. 23 And then elsewhere in this document are 0. samples from the alluvial aquifer in St. Charles County, 24 25 and -- which is just north of Franklin County across the

| | Page 321 |
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| 1 | Missouri River, and that's shown on pages 2, 3, 4, 5, 6, |
| 2 | 7, 8, 9, 10 to the top of 11. |
| 3 | A. Uh-huh. |
| 4 | Q. And those results for St. Charles County are |
| 5 | in the range of 1 to 8 micrograms per liter. That was |
| 6 | in Defiance, and that was for sampling done in 1992. |
| 7 | A. I guess I'm confused on page 2 of 103, the |
| 8 | ranges for arsenic are 20 $$ the results are 27 and |
| 9 | 42 micrograms per liter. |
| 10 | Q. That's from St. Francois County from a |
| 11 | landfill, from a municipal landfill. And I don't think |
| 12 | you'd call that a background concentration, would you? |
| 13 | A. I would I would really have to for me |
| 14 | to understand these results, I would have to see where |
| 15 | those wells are located and what is in proximity. |
| 16 | So this does say where does it say |
| 17 | landfill? |
| 18 | It says St. Francois County landfill |
| 19 | Q. Right. |
| 20 | A but I'm not I have no idea where the |
| 21 | well is in relation to the landfill. |
| 22 | Q. I'm I'm just showing I'm just pointing |
| 23 | out some data that you would have found if you had |
| 24 | looked at the USGS data for what they're finding in the |
| 25 | alluvial aquifer in Franklin County and the nearby |

Page 322 1 counties. 2 Α. Okay. So there is one result for Franklin 3 County. Correct? 4 Q. There is one result --5 Α. Okay. 6 -- for Franklin County and that's why I Q. 7 included some of the nearby counties. I included 8 Warren -- St. Charles County and St. Louis County, which 9 is just to the east, because Franklin -- Labadie is kind of on the eastern portion of Franklin County. And the 10 11 St. Louis County results are at the bo-- at the end, 12 pages 101 to 102, and there the range is 2.6 to 4.1 in 13 2013, two samples in 2013. 14 Α. Uh-huh. 15 MS. LIPELES: Okay. I'd like to move This Exhibit 353 into evidence. 16 JUDGE WOODRUFF: 353 has been offered. 17 18 Any objections to its receipt? 19 MR. TRIPP: Yeah. Ameren objects. There is no foundation laid. The witness is not familiar with 20 21 the -- where the lo-- where the wells are located or the circumstances surrounding the wells and she hasn't laid 22 23 the foundation otherwise. 24 MS. LIPELES: I think that goes to the weight that you would give her testimony with respect to it, 25

Page 323 but it's a government document. She's authenticated 1 2 that this looks like the database that she has consulted 3 herself, and I'm using it for --4 THE WITNESS: I -- I --5 MS. LIPELES: -- to question her conclusion 6 about the levels being background levels in this area. 7 THE WITNESS: I would like to qualify. I have not actually personally visited this 8 9 database, but it has the USGS logo on it, so I'm taking her word for it. I have not perused this database 10 myself. 11 12 MS. LIPELES: I thought you said earlier on that you were familiar with it. 13 14 THE WITNESS: I'm familiar that it exists. I have not used it, just so you know. 15 16 MS. LIPELES: I would still submit it as a 17 government document that --18 MR. TRIPP: It's a government document. It's actually a result of a search purportedly, so there is 19 still no foundation because this witness didn't do the 20 21 search, hasn't looked at the results, doesn't know the 22 search parameters. And I understand Ms. Lipeles's representations as to that but that's not foundation 23 24 evidence. 25 JUDGE WOODRUFF: I'm going to overrule the

Page 324 objection. The document 353 is received. 1 2 (INTERVENORS' EXHIBIT NO. 353 WAS RECEIVED 3 INTO EVIDENCE.) BY MS. LIPELES: 4 5 Dr. Bradley, I just have a few more Q. 6 questions. 7 I know that you're a toxicologist. You're 8 not a geologist, are you? 9 Α. No, I'm not. 10 And you're not a registered geologist in Q. Missouri? 11 12 Α. No, I'm not. 13 Q. And you're not licensed as a geologist in any 14 state, are you? 15 No, I'm not, but I do rely on geology Α. information for the work that I do. 16 17 Q. Okay. Are you familiar with the Missouri law governing the practice of geology in this state? 18 19 Α. No. 20 Q. Pardon? 21 Α. No. MS. LIPELES: This is a statute. I don't 22 know that I need to mark it. But if you'd like to mark 23 24 it, I can mark it. 25 JUDGE WOODRUFF: It's a State statute?

Page 325 1 MS. LIPELES: Yes. 2 JUDGE WOODRUFF: I don't think we need to. 3 MS. LIPELES: May I approach? JUDGE WOODRUFF: Yes. 4 5 BY MS. LIPELES: 6 I'd like to hand you a copy of Chapter 256 of Q. 7 the Missouri Revised Statutes with respect to geology 8 water resources and geodetic survey. 9 I just think this goes to the weight of the conclusions in Schedule 13, and so for that purpose I'd 10 11 like you to read Section 246-- sorry -- 256.456.1. 12 Α. You do realize I have never represented 13 myself as a geologist or a hydrogeologist? 14 I rely on their work. And, in fact, the update to this data that you provided in this 15 Exhibit 352 is from a report -- an AECOM report that I 16 17 reported with Golder & Associates and relied on their geologist and hydrogeologist for the geology and 18 hydrogeology work herein. So I just want to make that 19 clear. 20 21 But your Schedule 13 is entitled Q. Okay. 22 Review of Groundwater Analytical Data Collected in the 23 Vicinity of the Proposed Utility Waste Landfill for the 24 Ameren Missouri Labadie Energy Center. It's signed by 25 you and solely you.

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| 1 | Α. | Correct, because it's a risk-based evaluation |
| 2 | of the gro | oundwater data, which is exactly what I do and |
| 3 | I'm suppos | sed to do. |
| 4 | Q. | But it makes conclusions about, for example, |
| 5 | natural co | onditions for the area |
| 6 | Α. | Uh-huh. |
| 7 | Q. | sulfate reducing aquifer, et cetera, |
| 8 | consistent | with what you'd find in the aquifer. |
| 9 | | Can you please read that statutory provision? |
| 10 | Α. | You'll have to tell me the number again. I |
| 11 | don't thir | nk I ever found it. |
| 12 | Q. | It's 256.46.1 (sic). It's on the second page |
| 13 | of this pa | acket. |
| 14 | Α. | Okay. 456 256.456? |
| 15 | Q. | Right. Point one. |
| 16 | Α. | Point one. |
| 17 | Q. | The first paragraph. |
| 18 | Α. | Okay. So the five was missing. |
| 19 | | Except as provided in Section 256.471, no |
| 20 | person, fi | irm or corporation shall engage in the practice |
| 21 | of geology | g affecting public health, safety and welfare |
| 22 | unless the | e work is performed by or under the supervision |
| 23 | of a regis | stered geologist. |
| 24 | | All work as so performed shall be signed and |
| 25 | sealed by | the registered geologist and responsible |

Page 327 1 charge. 2 MS. LIPELES: Okay. I'd like to mark this as 3 354. Is that right? JUDGE WOODRUFF: That would be correct. 4 (INTERVENORS' EXHIBIT NO. 354 WAS MARKED FOR 5 IDENTIFICATION BY THE COURT REPORTER.) 6 BY MS. LIPELES: 7 8 Q. Dr. Bradley, this is a document that was 9 printed out of my computer which is why my name is on 10 it. 11 But it's an e-mail from you to Susan Knowles 12 and Craig Giesmann at Ameren, and it was provided to us 13 in response to a data request in this case. And you're 14 presenting your preliminary analyses of the groundwater 15 results, and at the end of the second full paragraph --16 well, in this paragraph you say arsenic, iron and 17 manganese are generally above MCLs and risk-based screening levels. 18 19 These are, of course, naturally occurring 20 levels that you are monitoring, and the results are not 21 surprising as we are in a lowland area where the 22 groundwater is likely reducing, thus mobilizing the 23 arsenic, iron and manganese naturally occurring in the 24 soils. I would ask Bruce to confirm my junior 25 hydrogeologist opinion. Correct?

| | | | Page 328 |
|----|------------|---|----------|
| 1 | Α. | Correct. | |
| 2 | Q. | And I assume from your smile that I correctly | 7 |
| 3 | read this, | that you were not saying that you're actually | 7 |
| 4 | a junior h | ydrogeologist? | |
| 5 | Α. | No. I am called that by some people I work | |
| 6 | with, thou | gh, from by the hydrogeologists that I work | ζ |
| 7 | with. | | |
| 8 | Q. | But that's not your actual title | |
| 9 | Α. | Correct. | |
| 10 | Q. | and you're not saying that you're not | |
| 11 | representi | ng yourself as a geologist? | |
| 12 | Α. | Not at all, which is why I said someone | |
| 13 | needs to c | onfirm | |
| 14 | Q. | Okay. | |
| 15 | Α. | the geology part of it. | |
| 16 | Q. | But Bruce or no other geologist signed | |
| 17 | Schedule 1 | 3; that was just you? | |
| 18 | Α. | Correct. That was me. | |
| 19 | | MS. LIPELES: Thank you. | |
| 20 | | I have no further questions. | |
| 21 | | JUDGE WOODRUFF: Did you wish to offer 354? | |
| 22 | | MS. LIPELES: Oh, yes. I'd like to offer | |
| 23 | thank you. | I'd like to offer 353 into evidence. | |
| 24 | | THE WITNESS: I think it's 4. | |
| 25 | | JUDGE WOODRUFF: 354. | |

Page 329 MS. LIPELES: Oh, sorry. 354. 1 2 JUDGE WOODRUFF: 354 has been offered. 3 Any objections to its receipt? Hearing no objection it is received. 4 5 (INTERVENORS' EXHIBIT NO. 354 WAS RECEIVED INTO EVIDENCE.) 6 7 JUDGE WOODRUFF: You also have marked 347, 348, 49, 50 and 51. Did you wish to offer those? 8 9 MS. LIPELES: Yes, please. 10 JUDGE WOODRUFF: All right. Those other documents have been offered. 11 12 Any objections to their receipt? MR. TRIPP: Objection to Exhibit 350, 351. 13 Those are charts that have been prepared. There has 14 15 been no foundation laid as to the preparation of those charts, the data that went into it. So there's -- it's 16 17 just been verified by the counsel's own representation. So no foundation, Your Honor. 18 19 JUDGE WOODRUFF: All right. Any response? MS. LIPELES: The witness offered to take a 20 21 look at them and I'm happy to defer ruling on that. I'm 22 also happy just to use them as demonstrative, which is fine. I mean, all of the underlying numbers are in the 23 documents that are in the record. 24 25 JUDGE WOODRUFF: All right. Since you're

Page 330 willing to use them as demonstrative we'll just leave 1 2 them as marked but not offered. 3 MS. LIPELES: Sure. JUDGE WOODRUFF: 347, 348 and 349 will be 4 5 received. 350 and 351 are not received but they are just marked as demonstrative. 6 7 (INTERVENORS' EXHIBIT NOS. 347 THROUGH 349 WERE RECEIVED INTO EVIDENCE.) 8 9 JUDGE WOODRUFF: Okay. And I believe you said you were finished? 10 MS. LIPELES: Yes. 11 12 JUDGE WOODRUFF: Okay. Come up to questions 13 to the bench then, beginning with the Chairman. OUESTIONS BY CHAIRMAN KENNEY: 14 15 Dr. Bradley, good afternoon. Q. 16 Α. Good afternoon. 17 Q. So I was having somewhat of a hard time following the very detailed and highly technical nature 18 of the back and forth between you and counsel, so let me 19 20 just ask some questions. 21 There is -- there is a certain level at which arsenic is harmful to human health. Correct? 22 If one is exposed to it, yes. 23 Α. 24 Q. Okay. 25 There has to be a route of exposure for you Α.

Page 331 to actually have a harm. 1 2 All right. So let me -- so it has to be some Q. 3 period of time? 4 Α. Uh-huh. 5 Q. And some concentration? 6 Α. Some concentration and some level of 7 exposure. 8 Q. When you say level of exposure, you mean over 9 some period of time or some amount of --10 Or how much you're exposed to. You could be Α. exposed -- let me give you a simple example which I 11 12 use --13 Q. Very simple. 14 -- with aspirin. Α. 15 Very simple, aspirin. We all have aspirin in 16 our medicine cabinets. 17 ο. I read this. Oh, you read that. 18 Α. 19 So you understand that -- that you can take two aspirin every four hours. It's fine. If you took 20 21 the whole bottle at once, that could be very toxic to 22 you. 23 Q. So it's dosage and time? 24 Exactly. Α. 25 All right. So let's look at Table 2, 3 and Q.

Page 332 1 11, because I think those are the ones that were of most 2 importance as you were testifying. 3 Α. And we're in --4 Q. In your testimony, the schedules in your 5 testimony. Okay. 2, 3 and 11. 6 Α. 7 Schedules 2, 3 and 11? 8 Q. Tables 2, 3 and 11 from Schedule -- I guess it's Schedule 13. 9 10 It's in your testimony. 11 Oh, these? Α. 12 Q. Yes. 13 Α. These? Okay. Yes. 14 Table 2 and 3. Q. 15 So Table 2 is April 2013. Right? 16 Α. Uh-huh. 17 Q. Table 3 is August of 2013? Uh-huh. 18 Α. 19 And then this Table 11, which was not Q. 20 included in your testimony but this was provided later. 21 Right? Correct. 22 Α. 23 And that's November? Q. 24 November. Α. 25 So the levels of arsenic, if they're in Q.

Page 333 1 green, what does that mean? Greater than --2 Is greater than EPA's tap water screening Α. 3 level. That -- that level is very, very, very low. It's --4 5 Would I want to drink it? Would I want to Q. drink that? 6 7 Α. Oh, I would be fine. I probably do. I live 8 in New England and I have a private well. 9 0. So the regional screening level means what 10 for EPA purposes, versus maximum containment level 11 versus the secondary maximum --12 Α. The regional screening levels are just risk-13 based screening levels that EPA uses to make decisions about exposure or potential risk at, say, hazardous 14 waste sites or elsewhere. 15 The difference between those and the MCLs is 16 17 that the MCLs are enforceable criteria for drinking water. 18 19 So if you're a drinking water company, you can't provide public drinking water with arsenic or any 20 21 of these other constituents above their MCL, their maximum contaminant level. 22 23 What about above the RSL? Q. 2.4 Above the RSL is fine, within -- a water Α. company can provide that. 25

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|----|--|
| 1 | Q. And then the total dissolved solids that are |
| 2 | in yellow |
| 3 | A. Uh-huh. |
| 4 | Q what's the significance of those that are |
| 5 | greater than the maximum contaminant level? |
| 6 | A. For TDS that value, that screening level of |
| 7 | 500 there, is a secondary MCL. So secondary MCLs are |
| 8 | based on aesthetics or technical issues. |
| 9 | So for for TDS and I don't have the |
| 10 | specific background of what it's based on, but it's an |
| 11 | aesthetic characteristic. It's not a risk-based |
| 12 | characteristic. |
| 13 | So it's just like you don't want the water to |
| 14 | be too cloudy. |
| 15 | Q. Okay. |
| 16 | A. You can think of it that way. |
| 17 | Q. Okay. Yellow total dissolved solids have no |
| 18 | effect on human health above those levels of green? If |
| 19 | I look at the legend at the bottom, it says greater than |
| 20 | MCL. It doesn't say greater than secondary. |
| 21 | A. It doesn't and I could probably |
| 22 | Q. Is that an error? |
| 23 | A. The it's probably a slight omission. If |
| 24 | you look at this line here, it says if it's an MCL or |
| 25 | it says that these are either MCLs or SMCLs in the row. |

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|----|--|
| 1 | So that the yellow could probably both the |
| 2 | yellow and the blue could say greater than MCL or SMCL. |
| 3 | Q. So what you're testifying today is that this |
| 4 | refers to a secondary maxi |
| 5 | A. The TDS is an SMCL, yes. |
| 6 | Q. Okay. So at that level |
| 7 | A. But that's why we look at all of these |
| 8 | constituents together. |
| 9 | Q. All right. So at that level for those total |
| 10 | dissolved solids, that's not harmful to human health at |
| 11 | those levels, those that are yellow? |
| 12 | A. It's not determined to be, no. It's it's |
| 13 | more based on aesthetic criteria. |
| 14 | A. So, for example, the aluminum value is an |
| 15 | SMCL and it's based on if you have aluminum at higher |
| 16 | concentrations in a public water system, I think because |
| 17 | of chlorination, et cetera, it can cause the aluminum at |
| 18 | higher concentrations to precipitate out of the public |
| 19 | drinking water. So that would be bad. You'd have, you |
| 20 | know, bits of flocculent essentially in the drinking |
| 21 | water. So that's the basis for the aluminum SMCL. |
| 22 | Q. The aluminum SMCL meaning what? What are you |
| 23 | looking at? Are you on Table 2? |
| 24 | A. Yep, it's on Table 2. |
| 25 | So next to TDS is the aluminum column. |

Page 336 1 0. Yes. 2 Α. The value there, 50 micrograms per liter, is 3 the secondary MCL. The risk-based screening level for tap water is 16,000 --4 5 Q. Okay. 6 -- micrograms per liter. Α. 7 And you can see that there are a couple of results that are above EPA's secondary MCL for aluminum. 8 But that's not harmful to human health? 9 0. 10 No. Α. 11 Okay. So we don't need to be worried about Q. 12 those then. 13 So what about the ones that are in blue, if 14 you go over to arsenic. Ten it says is the level above which -- is that harmful to human health then above 15 those levels? 16 17 Α. It can be. So the MCL is a precautionary 18 number. 19 Q. And then so --But the question is, it's level at that --20 Α. 21 it's present at that concentration, but the question is is anyone using this alluvial groundwater for drinking 22 23 water. 24 Q. I'll get to that in a minute --25 Α. Okay.

Page 337 1 0. -- in a second. That's a different question. 2 Α. Okay. 3 Q. I just want to make sure I'm interpreting 4 these results correctly. 5 So anything that is in blue for arsenic is above levels that are harmful for human health? 6 7 Α. It could be harmful potentially, yes. 8 Q. Okay. And then the same with iron, 9 manganese. Just going over in the chart. Lead. There 10 doesn't seem to be any lead. 11 Okay. So anything that is in blue, anything 12 that is in -- is harmful to human health? Yes. Any in blue -- anything in blue and 13 Α. yellow could be potentially harmful to human health. 14 15 Well, all right. I thought you told me Q. yellow was not harmful to human health. 16 17 Α. Yellow is greater than the MCL, so -- but -so let's go back. 18 19 And as you have these questions, I realize I could have added a line describing each of these numbers 20 21 as to whether each was an MCL or an SMCL. The value for iron is an SMCL, a secondary 22 number. It's also an aesthetic criterion, the 23 300 micrograms per liter. It's for staining. Iron 24 containing water can stain things. 25

Page 338 So when I was growing up we had a -- I'm 1 2 sorry -- we had a water softener to take iron out of our 3 water. 4 Manganese, you can see the 50 micrograms per 5 liter. 6 I'm going to take that back. I'm not sure if 7 that's an MCL or an SMCL, but the iron --8 Q. How would you know this by looking at it? 9 How would you know whether it's an MCL or an SMCL? 10 Well, in this report that I have that details Α. this information, I actually have a table that 11 12 summarizes all the screening levels. I'm going to flip to that. 13 14 See, for iron, the .3 is an SMCL. For 15 manganese the 50 micro-- so the 300 for iron is an SMCL. The 50 for manganese is also an SMCL. 16 17 That's on -- that's also based on aesthetic conditions, because manganese can make -- turn things 18 black. So if -- your cutlery or the drain in your sink, 19 20 it stains things black, whereas iron stains things red. 21 So these -- these SMCLs are meant to prevent that 22 staining. Q. 23 So if I'm understanding you correctly, the only one that we need to be concerned about being 24 harmful to human health is the arsenic? 25

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| 1 | A. Well, some of the higher concentrations of |
| 2 | iron and manganese can be above the second line |
| 3 | row there are risk-based concentrations. So some of |
| 4 | those are also above EPA's risk-based concentrations, |
| 5 | which are based on risk. |
| 6 | Q. Risk to human health? |
| 7 | A. Correct. |
| 8 | Q. Not just the aesthetics? |
| 9 | A. Correct. |
| 10 | So if you look for iron, the SMCL is |
| 11 | 300 micrograms per liter. The risk-based screening |
| 12 | level for tap water is 11,000 micrograms per liter. So |
| 13 | you can see that difference between the two values. |
| 14 | And here we do have two values that are above |
| 15 | the 11,000 in this. I'm looking at November of 2013. |
| 16 | Q. But going back, if you look at Table 2, it's |
| 17 | actually more than two. |
| 18 | Okay. I think I understand that. |
| 19 | A. Okay. I'm sorry. It's kind of confusing. |
| 20 | It's a lot of data to summarize. |
| 21 | Q. It is. And I'm just trying to get a |
| 22 | layperson's understanding of it all. |
| 23 | A. Yes. So there were more in in April. |
| 24 | But what is interesting is where we have high |
| 25 | arsenic we generally have high iron. So those two, if |

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| 1 | you look at the data from within each data set and from |
| 2 | data set to data set, they tend to track. |
| 3 | Manganese tracks with them less robustly, but |
| 4 | that all leads us to the conclusion that they're likely |
| 5 | to be naturally occurring and due to reducing conditions |
| 6 | in the aquifer and that they're behaving similar |
| 7 | similarly. |
| 8 | Q. So is that is that what you just said, |
| 9 | does that explain the general decline in high levels of |
| 10 | iron, manganese and arsenic over time from the April, |
| 11 | August and November charts? Because it looks like they |
| 12 | have decreased over time. |
| 13 | A. There have been decreases. I'm not sure of |
| 14 | the exact reason for that. It could be that the first |
| 15 | sampling of the wells a geologist or a hydrogeologist |
| 16 | might tell you that those the first sampling of |
| 17 | wells, constituent concentrations can be higher then if |
| 18 | you let the well equilibrate over time. So that's |
| 19 | that's a potential explanation. |
| 20 | We're also looking although I'm not a |
| 21 | geologist, but my understanding is that the alluvial |
| 22 | aquifer is made up of a lot of different materials. |
| 23 | And if you think about the Missouri River, |
| 24 | it's kind of scowered out this area through many |
| 25 | thousands of years, and what has filled in the alluvium |

Page 341 is material, rubble from upstream that has come down and 1 2 deposited into the floodplains. 3 So it's a mixture of a lot of different materials, sediments and rocks. 4 5 And so there's a variability in the geology there, so that if groundwater conditions change over 6 7 time, they're reducing their oxidizing conditions, and that groundwater you could get variable results --8 9 **Q**. All right. 10 -- that we're seeing here. Α. And I think it's that variability, that 11 12 geological variability. 13 Q. I'm going to try to speed things up here a 14 little bit. I apologize. 15 Did you see this, Commission Chart 1000? 16 Have you seen this? 17 Α. Yes. It's actually in one of my reports. 18 Oh. This is yours? Q. 19 Yes. Α. 20 Q. All right. 21 Α. Well, actually Golder, the geologist and hydrogeologist prepared that exhibit. 22 23 0. The wells -- the monitoring wells that are 24 set forth in Tables 2, 3 and 11, where are they on here? 25 Α. Um, let me see.

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| 1 | Q. Are they all situated generally around in the |
| 2 | approximate location of Labadie Energy Center? |
| 3 | A. So yes. You need to look at two so these |
| 4 | wells, MW you can see the red of the power plant, |
| 5 | little stick figure of the power plant. Correct? |
| 6 | In front of those, MW-26, MW-27, MW-28, MW-1 |
| 7 | are all those three wells are part of the monitoring |
| 8 | well network for the proposed landfill and that network |
| 9 | is shown in this figure. |
| 10 | So these are all of the wells this is the |
| 11 | Labadie Energy Center. These are all of the wells that |
| 12 | are part of the monitoring program for the proposed |
| 13 | landfill. So these three wells, 26, 27 and 28, are what |
| 14 | are shown on that cross-section and so |
| 15 | Q. And all 28 of these wells are only monitoring |
| 16 | the alluvial aquifer. Correct? |
| 17 | A. Correct. |
| 18 | Q. They're not going down into the bedrock? |
| 19 | A. No, they're not. |
| 20 | We do have in this same schedule results for |
| 21 | three bedrock wells that were put in by Ameren and |
| 22 | sampled, and those results are in I'm getting my |
| 23 | pages mixed up here. Hold on. |
| 24 | Q. Where are those wells |
| 25 | A. So those wells are deep wells. They are |

Page 343 they are screened in the bedrock and TGPA. 1 2 Where is it on here? Q. 3 Α. I can show you here. This is TGPA, is a bedrock well that is 4 5 closest to the facility. And then TGPC is another bedrock well that Ameren put in, and it was put in 6 7 specifically to be in an area where private residences are using groundwater's drinking water. 8 9 And so we're showing not only TGPC here but we're also showing Well No. 48, which is a private well, 10 Well No. 47 is a private well, to show that the data 11 12 that was collected from the well that Ameren put in is representative of drinking water in the bedrock aquifer, 13 which is where people are getting their drinking water. 14 15 Q. Got you. 16 So the results of the wells that are 17 monitored in the bedrock are going to be more relevant for our purposes because that is what is supplying the 18 19 drinking water to people's wells? 20 Α. Correct. 21 Q. Okay. 22 All right. I'm going to ask you the standard 23 questions --2.4 And -- and I'll just say one more thing Α. because we didn't get to that. 25

Page 344 1 0. Okay. And your -- your lawyer will 2 probably -- I just to make this go faster. 3 Α. Okay. 4 Q. Your lawyer will probably follow up with you 5 if he wants to, if he is so inclined. 6 Let me just ask you these questions that I'm 7 probably going to ask all of the experts that are --8 that are testifying. 9 You are -- you were hired specifically for 10 the purposes of this case, correct, or were you 11 working --12 Α. No. I have been working with Ameren probably 13 since 2010 on the siting of this landfill. 14 Q. This particular one? 15 Α. Correct. 16 Q. And I noted from your resume that there are 17 other engagements on behalf of Ameren as well? 18 Α. Correct. 19 And do you charge an hourly rate to prepare Q. 20 your reports or are you charging a flat rate for that? 21 Α. An hourly rate. 22 Q. And what's your hourly rate for that? It ranges between 195 and I think 220. 23 Α. 24 Q. And then what is your hourly rate to appear 25 here at hearing, or do you have a different hourly rate?

Page 345 1 No. It's not different. Α. 2 Q. Good for you. 3 Have you testified at administrative hearings 4 before? 5 Α. I believe so, yes, as part -- as part of this, the Franklin County hearings. 6 7 Other than for this landfill? Q. Yes, I have. 8 Α. 9 Has -- and have you testified at trials and 0. 10 other hearings as other -- other civil actions or other 11 types of proce-- court proceedings? 12 Α. Yes. Just not very many. Is the bulk of your work -- would it be fair 13 Q. 14 to characterize the bulk of your work being done on behalf of utilities, Ameren, other such utilities? 15 16 Α. Utilities but also manufacturers. 17 Ο. Industrial manufacturers? Industrial manufacturers. 18 Α. 19 Have you provided any consulting services or Q. 20 testified ever on behalf of an organization like the 21 Sierra Club or --Not the Sierra Club, but I did work at one 22 Α. point for a town in -- outside of Chicago in a 23 24 manufactured gas plant case, and the town was overseeing 25 what a utility was doing at that -- at a site for a

Page 346 manufactured gas plant. So I worked for the town in 1 2 that. But no util-- no environmental organizations? 3 Q. Α. 4 No. 5 CHAIRMAN KEENEY: Doctor, thanks for your time. I'm finished. 6 7 THE WITNESS: You're quite welcome. JUDGE WOODRUFF: Commissioner Stoll. 8 QUESTIONS BY COMMISSIONER STOLL: 9 10 Q. Okay. I just have one inquiry. 11 When we're talking about the -- what we would 12 call cinders that are put on the streets in towns, that 13 was kind of the -- that came up a little earlier, what 14 kind of coal combustion product is that? Is that --15 Α. That -- that would be a bottom ash, so that --16 17 Ο. Bottom ash. 18 -- what comes out in the bottom of the Α. boiler, and it can be very hard. The constituent 19 concentrations of bottom ash are generally lower than 20 21 you have in fly ash. That was actually a concern of -- of the 22 23 community with respect to the Labadie Energy Center 24 because they do sell some of their bottom ash to -which is used as roads for anti-icing. 25

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| 1 | And the county actually went to Ameren and |
| 2 | asked for samples, which Ameren didn't know what they |
| 3 | were going to be used for, but the county did TCLP |
| 4 | testing on both the Ameren fly ash and bottom ash. |
| 5 | And they were the county was concerned |
| 6 | about the bottom ash being used as cinders, and all of |
| 7 | the county's results were below regulatory criteria for |
| 8 | TCLP testing. And that's something that they |
| 9 | published the county published in the local |
| 10 | newspaper. |
| 11 | Q. So even though over time the reason I'm |
| 12 | concerned about is it's all over our streets, or it was. |
| 13 | But over time as cars grind it up and some of |
| 14 | it does become airborne, EPA doesn't see that as |
| 15 | hazardous? |
| 16 | A. No. |
| 17 | And actually there are two things. ATSDR did |
| 18 | a health assessment of that for an Air Force base in |
| 19 | Alaska and did not find any potential risk of that |
| 20 | particular use of cinders. |
| 21 | And USEPA just recently did a risk-based |
| 22 | evaluation of the use of fly ash in concrete on |
| 23 | roadways, and they looked at the potential for dust |
| 24 | being generated from the roads, under a worst-case |
| 25 | condition that the roads were traveled by cars with |

Page 348 studded tires. 1 2 So that's looking at fly ash, not just the 3 bottom ash. And they didn't find any risks above regulatory targets. 4 5 Q. And so is it correct that the fly ash and bottom ash that -- well, let's say the bottom ash that 6 7 isn't given to or sold to municipalities and counties, 8 does it -- it then would go into this landfill. 9 Correct? 10 Α. Correct. 11 COMMISSIONER STOLL: Okay. Thank you. 12 JUDGE WOODRUFF: Commissioner Kenney. COMMISSIONER KENNEY: Thank you. 13 14 OUESTIONS BY COMMISSIONER KENNEY: 15 I know fly ash does go into concrete. Q. 16 Correct? 17 Α. Correct. 18 Is there a determining factor of -- can all Q. 19 fly ash go into concrete or is there a determining 20 factor --21 Α. There -- there is specifications. ASTM has specifications. The American Concrete Institute has 22 specifications for the quality of the ash that can be 23 used in concrete and the amount. 24 25 What do you mean by quality? Q.

Page 349 Α. I think a lot of it -- and here I'm getting a 1 2 little out of my comfort zone -- has to do, I think, 3 with the calcium content. That makes --4 Q. 5 Α. So there are different classes of ash. And so certain classes are appropriate for use in concrete 6 7 and some may not be. 8 Q. So a utility will sell as much fly ash as 9 they can and the rest goes into the landfill? 10 Α. In general, yes. And so Ameren actually beneficially reuses 11 12 about 60 percent of the ash that they produce, which the 13 national average right now is around 42 percent. 14 ο. Is that all ash, coal and -- I mean, fly 15 ash --16 Fly ash and bottom ash. Α. 17 And the national average is about 42 percent, so they do a very good job in terms of beneficially 18 19 reusing their ash. 20 COMMISSIONER KENNEY: Okay. Thank you. 21 JUDGE WOODRUFF: Commissioner Hall. 22 COMMISSIONER HALL: I have no questions. 23 JUDGE WOODRUFF: All right. And I have 24 nothing. 25 So we'll go to recross based on questions

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Page 350 from the bench, beginning with Staff. 1 2 MR. WILLIAMS: No questions. 3 JUDGE WOODRUFF: Public Counsel. MR. MILLS: No questions. 4 5 JUDGE WOODRUFF: Sierra Club, LEO. 6 MS. LIPELES: I think just a couple -- just a 7 couple questions, Dr. Bradley, to clarify about the 8 MCLs. RECROSS-EXAMINATION BY MS. LIPELES: 9 10 Q. The MCL for arsenic is a health based, I 11 think you indicated that, and the -- how EPA sets the 12 MCLs is they determine MCLG, maximum contaminant level 13 goal --14 Α. Uh-huh. 15 -- which is based solely on what is necessary Q. 16 to protect public health, and the MCLG for arsenic is 17 actually zero, so that's the ideal? Well, the MCL--18 Α. 19 Q. In setting the MCL they then look at 20 feasibility, and so they -- they determined that zero 21 wasn't technically feasible, so they set the drinking 22 water standard as the closest they can get to zero as to 23 what is feasible and that's how it's ten micrograms per liter? 24 The -- the regulatory policy at EPA for --25 Α.

Page 351 for drinking water for all potential carcinogens is to 1 2 have an MCLG, an MCL goal, of zero. So that's for every 3 carcinogen. And then they also -- they look at 4 5 health-based screening levels, as well as technical practicability. So that is all part of the MCL 6 7 development process. 8 But that's a regulatory default for 9 everything is an MCLG of zero. 10 Q. Okay. And I wanted to ask you about the 11 bedrock wells that you testified that Golder drilled on 12 behalf of Ameren south of the plant. Uh-huh. 13 Α. 14 And I believe Mr. Giesmann testified that 0. 15 they were installed as part of litigation. Are you familiar with -- did you hear him testify to that? 16 17 Α. No, and that's not my understanding. 18 I thought he said it's part of the civil case Q. 19 or something like that. 20 Α. No. This is something that Ameren did 21 proactively really. 22 0. Okay. And are you aware of the fact that 23 Golder labeled all those wells as upgradient, meaning that they would not be -- if there was contamination 24 25 coming from the plant, it would not be going towards

Page 352 1 those wells. It would be coming from those wells, 2 towards the ash ponds? 3 Α. Well, the -- by virtue of taking water level measurements in those wells, they were then able to 4 5 demonstrate that those wells are located upgradient by -- by the direction of groundwater flow, so it was 6 7 something that they proved as part of the data collection for those wells. 8 9 The wells were cited where they are specifically to address citizen concerns about the 10 11 quality of their drinking water and that drinking water 12 is -- is the bedrock aquifer. So that was specifically the reason for the location of those wells. 13 14 Q. But they had data from the detailed site investigation indicating at least during the year of the 15 16 detailed site investigation what directions the water 17 flows during what period of time and --18 Α. But that's in the alluvial aquifer. 19 So the detailed site investigation looked at groundwater in the alluvial aquifer. These three wells 20 21 are in the bedrock aquifer, so their water levels and that direction of flow is representative of the bedrock 22 aquifer, not the alluvial aquifer. 23 24 Q. And Ameren has not collected any groundwater 25 data from the bedrock aquifer that would be downgradient

Page 353 1 of the ash ponds, has it? 2 Α. I -- I guess I'm not really sure where you 3 would say that would be. 4 Q. Well, it's a yes or no question. 5 They've collected bedrock data in these three wells upgradient of the ash ponds; they have not 6 7 collected bedrock data downgradient of the ash ponds? The only place that would be -- I think 8 Α. that's --9 10 It's a yes or no. They have --Q. I don't think it is a yes or no --11 Α. 12 Q. They have --13 Α. -- answer. 14 -- data from only three bedrock wells --Q. 15 Right. Correct. Α. -- that they drilled, labeled all of them 16 Q. 17 upgradient? 18 They are labeled up -- but I want you to -- I Α. want you to understand, they're labeled upgradient 19 because the data that we have for them demonstrates that 20 21 that area of bedrock is upgradient of the facility. So that's an important -- it's a small but I think 22 important distinction. 23 Okay. But I think there's -- you're not 24 Q. 25 aware of any wells that have been sampled or drilled or

Page 354 1 sampled in the bedrock that would be downgradient of 2 the --3 Α. I don't really know that --4 Q. -- the ash ponds? 5 Α. -- bedrock groundwater would be downgradient, but that's a question I think for a later expert. 6 7 Q. Okay. But you're not aware of any? 8 Α. No. 9 MS. LIPELES: Thank you. 10 No further questions JUDGE WOODRUFF: Redirect. 11 12 REDIRECT EXAMINATION BY MR. TRIPP: 13 Q. Dr. Bradley, do you recall the questions at 14 the beginning of Ms. Lipeles' cross-examination 15 regarding lead and exposure to lead? 16 Correct. Α. 17 Q. Is it fair to talk about just exposure in the abstract? 18 19 No. As I tried to explain to Mr. Kenney Α. here, the first Mr. Kenney, risk is a function of 20 21 exposure -- magnitude of exposure and toxicity. The foundation of that is if there is no exposure, there is 22 no risk. 23 So in this alluvial aquifer, although we have 24 concentrations of a handful of constituents here that 25

Page 355 are above EPA's drinking water screening levels and 1 2 their -- their drinking water criteria, no one is using 3 this groundwater for drinking water, and by virtue of no exposure there is no risk. 4 5 Q. And drinking water, I know that's been our That's not the only potential exposure pathway. 6 focus. 7 Α. So --8 Q. What are the others? 9 Α. So we've looked at the potential for groundwater discharge to surface water. So we've looked 10 at both Labadie Creek, which is a small creek that is 11 12 just to the west of the facility, and it's probably around 600 to 700 feet from the unlined ash pond. 13 14 We've looked at surface water concentrations upstream and downstream of the facility in the Missouri 15 River. 16 And the concentrations for both Labadie Creek 17 upstream and downstream, as well as the Missouri River 18 upstream and downstream, are very consistent. 19 So we're not seeing an impact of -- if there 20 21 is -- if there is an impact of coal ash management facilities at Labadie, we are not seeing that impact in 22 surface water where people could potentially be exposed. 23 24 So in Labadie Creek you could make the 25 assumption that maybe someone recreates there. Thev

| | | Page 356 |
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| 1 | might wade in that creek. I find that unlikely but | |
| 2 | it's a it's a possibility. But those concentrations | |
| 3 | for the most part in Labadie Creek are below risk-based | |
| 4 | screening levels. | |
| 5 | We found the same thing in the Missouri | |
| 6 | River. So if we're having an impact on the Missouri | |
| 7 | River, it's not discernable. | |
| 8 | Q. And you were just asked about whether Ameren | |
| 9 | Missouri had placed any wells in the bedrock aquifer | |
| 10 | downgradient of the ash ponds, for example | |
| 11 | A. Correct. | |
| 12 | Q or the site itself? | |
| 13 | The where do people from the bed from | n |
| 14 | the bedrock aquifer, where do they draw their drinking | |
| 15 | water from? What area of the bedrock aquifer? Is it | |
| 16 | downgradient from the site? | |
| 17 | A. So the the where people are living near | - |
| 18 | Labadie is not there is essentially up in the bluffs. | |
| 19 | We did a study within a one-mile radius of the facility. | |
| 20 | There are about 80 to 90 private wells. | |
| 21 | And all of those we've looked at how where | È |
| 22 | they were screened, how deep these wells are. A handful | L |
| 23 | of wells are maybe 100 to 200 feet deep. Most of the | |
| 24 | wells are between 300 to 600 feet deep. | |
| 25 | So these are wells that these private | |

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| 1 | drinking water wells are drawing water from the bedrock |
| 2 | aquifer and very deep in the bedrock aquifer. |
| 3 | Q. You were asked some questions, and I think |
| 4 | the gist of the questions was the more data the better |
| 5 | data the better study that you'll end up with. And |
| 6 | particularly you were shown Table 1 in that Coal Ash |
| 7 | Material Safety report that you prepared earlier, and it |
| 8 | was pointed out that you didn't use all of the data. Do |
| 9 | you recall that? |
| 10 | A. Correct, yes. |
| 11 | Q. Why didn't you use all of the data there? |
| 12 | A. Well, a lot of the data, as I tried to |
| 13 | explain to Ms. Lipeles, was collected from areas within |
| 14 | the power plant that the ash no one is going to go in |
| 15 | and take that ash and use something. It needs to keep |
| 16 | moving through the power plant. |
| 17 | So in this report, this coal ash material |
| 18 | safety report, we actually provide in the appendix |
| 19 | the and I'm looking to see if it's here. |
| 20 | For each of the facilities USGS provided the |
| 21 | power plant schematic, and it's very clear where they |
| 22 | took the data from. And so that some of these are from |
| 23 | intermediary processes, and we wanted to make sure we |
| 24 | were looking at the end product. |
| 25 | Q. You were do you have Exhibit 348 up there? |

Page 358 What is it? Hold it up. What's it look 1 Α. 2 like? 3 Q. It's the --Oh, the --4 Α. -- December 2009. 5 Q. 6 Α. Yeah. 7 You were asked a question about one reference Q. 8 on page, I think, 54, which is an excerpt from that 9 report. 10 Do you know the basis for the statement with 11 regard to arsenic? 12 Α. No. I haven't looked at their data. I mean, it's -- it's clear that there are --13 from the EPRI data and from the data from the USGS, 14 15 there is a range of arsenic concentrations in ash. 16 But for the ash that is from Powder River 17 Basin coal, those arsenic concentrations, according to USGS data, are within EPA's target risk range. 18 19 And I'd like to actually talk for a moment about that target risk range, and I'd like to show the 20 21 Commission, when we talk about the target risk range and we talk about the one in a million cancer risk and the 22 one in 10,000. 23 If we look at -- this is called -- what I 24 call the risk arrow, where your risk of contracting 25

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| 1 | cancer is one in one here and the risk down here is one | |
| 2 | in one million. | |
| 3 | EPA regulates between one and 10,000 and one | |
| 4 | in one million. This is the regulatory world that we | |
| 5 | live in, and so these are the three bars for arsenic. | |
| 6 | The background cancer rate in the U.S. right | |
| 7 | now is one in two for men and one in three for women. | |
| 8 | That's our background cancer rate. We are regulating | |
| 9 | orders of magnitude below that. | |
| 10 | So that adds a huge level of safety to our | |
| 11 | regulatory decisions and that needs to be taken into | |
| 12 | account when we look at these comparisons of these | |
| 13 | concentrations to EPA's risk-based screening levels. | |
| 14 | Q. And, Dr. Bradley, that chart is actually | |
| 15 | Exhibit or Schedule 15 to your testimony? | |
| 16 | A. Yes, it is, but it wasn't in color. Mine | |
| 17 | isn't in color, so I didn't pick it up. | |
| 18 | Q. You were asked questions about Schedule 9. | |
| 19 | Do you remember the three different risk levels with | |
| 20 | regard to arsenic? | |
| 21 | A. Correct. | |
| 22 | Q. Why did you use why did you show three | |
| 23 | different levels? | |
| 24 | A. I showed those three different levels | |
| 25 | specifically to provide that context that I just showed | |

Page 360 in that risk arrow, that that is EPA's target risk 1 2 range. 3 What that means is when -- in a superfund project, in -- under EPA regulatory projects, if a risk 4 5 assessment is done and the risk is below ten to the minus four, EPA generally does not require action or 6 7 remediation. Where risks are above ten to the minus four 8 is where EPA will require generally some type of 9 10 remediation. So that's the -- the -- the target -- the 11 12 regulatory target that EPA uses in its decision making. We talk about a risk range because if some 13 type of cleanup is needed, EPA generally prefers, if 14 15 you're going to go out and clean up something, clean it up something to one in 10-- one in 100,000 to one in a 16 17 million risk levels to lower more protective risk levels, but they generally make their regulatory 18 decisions based on that one in 10,000 risk level, 19 that -- this -- this upper part of the arsenic bars so 20 21 to speak. 22 0. You were asked some questions about the 23 groundwater monitoring results, all three rounds of 24 groundwater sampling results? 25 Uh-huh. Α.

Page 361 1 0. Does the con-- is there a context of what is 2 present in the background relevant to looking at those 3 results? It is, because the purpose of those wells, as 4 Α. 5 I understand it, for the landfill permitting is to establish the background conditions for this area, such 6 7 that once the land-- if the landfill is permitted and built, then monitoring can be conducted to determine if 8 there might be any leakage or release of constituents 9 10 from the landfill in the future. So it's a level of redundancy, so to speak, 11 12 in terms of health protectiveness of the landfill. You've got the double liner, the HDPE, the clay liner, 13 there's a leachate collection system and then there's 14 15 also this monitoring well network that is in place specifically to determine is there a release, but you 16 17 need to understand background conditions to be able to determine if there is a release. 18 19 Q. And is -- are there background constituents -- is arsenic a background constituent in that area? 20 21 Α. Arsenic is. So in USGS data there's a map, and I believe 22 it's in my testimony here, of background levels of 23 24 arsenic and groundwater across the U.S. 25 Maybe you can tell me what number.

Page 362 And background levels of arsenic in soils 1 2 across the U.S. 3 Ο. Schedule 2? Α. Yes. 4 5 So Schedule 2 is background levels of arsenic in soils in the U.S. 6 7 Well, I can't read it because it's clipped 8 out. Yes, but that's Section 2. 9 So background levels of arsenic in soil and -- well, it must be in this report. Look for that. 10 Sorry. So this is -- so you can see it in 11 12 color -- a map of USGS data of background levels of arsenic in soils across the U.S. 13 14 So the darker concentration correlates with higher concentrations of arsenic. Missouri is here. So 15 darker blue, we've got higher concentrations of arsenic 16 17 in soil. 18 This is a map of kind of average concentrations of arsenic in groundwater across the U.S. 19 20 So you can see that arsenic is naturally 21 present in our soils and groundwater. So the fact that there is some arsenic in the 22 0. 23 groundwater monitoring samples that we have I guess 24 doesn't necessarily mean that it's from coal ash for 25 example?

Page 363 Correct. And you also have to -- you have to 1 Α. 2 look at the data carefully. Where we see higher arsenic 3 concentrations are actually in the monitoring wells that are furthest away from the ash ponds. 4 5 So if there is a concern that the arsenic, iron and manganese are coming from the ash ponds, we 6 7 don't see a way that that could be happening because the 8 wells on the exhibit that I showed the first Mr. Kenney 9 that are the monitoring wells from the network that are closest to the ash -- to the ash ponds to the facility, 10 those have some of the lowest arsenic concentrations. 11 12 So if these higher concentrations of arsenic 13 were really from the ash management facilities, we would expect to see those wells closest to the ash management 14 facilities have the higher concentrations, and that's 15 not what we're seeing. 16 17 So it's not just one piece of information that leads to that conclusion. It's many pieces of 18 19 information. 20 Ms. Lipeles has told me that I could actually Q. 21 ask this question. 22 Are there constituent markers for coal ash 23 contamination that you would look for in groundwater 24 monitoring samples? 25 Yes. So as I tried to explain a bit earlier, Α.

| | 1 450 |
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| 1 | sulfate and borin are common constituents associated |
| 2 | when you have releases of constituents from coal ash. |
| 3 | They are both very soluble in water. They're both |
| 4 | highly mobile in groundwater because there is nothing |
| 5 | that holds it up. They don't stick to the soil |
| 6 | particles. They're very soluble. So they are used as |
| 7 | markers of potential releases from coal ash management |
| 8 | facilities. |
| 9 | So not only do we have this variability in |
| 10 | the arsenic and manganese and iron concentrations in |
| 11 | these wells in the monitoring network, not only do we |
| 12 | have the arsenic concentrations found in wells furthest |
| 13 | from the ash management facilities at Labadie, we also |
| 14 | don't see these high levels of borin and sulfate. |
| 15 | In fact, the concentrations of borin and |
| 16 | sulfate in this monitoring well network is very low and |
| 17 | also consistent with background. |
| 18 | And there are two other pieces of information |
| 19 | that suggest to us that these borin and sulfate |
| 20 | concentrations are associated with background. |
| 21 | And one is the surface water data that was |
| 22 | collected from Labadie Creek, the upstream |
| 23 | concentrations which were collected well upstream of the |
| 24 | facility have borin concentrations that are actually |
| 25 | higher than most of the concentrations that we see in |

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Page 365 the groundwater, in the monitoring well network. 1 2 And so this is a -- this is a naturally 3 occurring condition is this borin concentration and it's consistent. 4 5 You know, the water that is in Labadie Creek is there either due to overland flow or discharge of 6 7 groundwater. So it's not surprising that we see borin in the creek, upgradient, upstream. We also see it at 8 these low levels in this monitoring well network but 9 nowhere near levels that one would expect to see if 10 there wasn't a release from an ash management facility. 11 12 Dr. Bradley, related to these three rounds of Q. 13 groundwater monitoring samples, the attorney for LEO and 14 Sierra Club in his opening statement said out of 15 87 samples there were 80 exceedances. 16 Is that a full picture of the results of the 17 groundwater monitoring? 18 Α. No, it's not, and I'd like to explain why 19 that is. So we have a monitoring well network of 20 21 29 wells. Three -- we now have three rounds of data from those 29 wells. So we have approximately 87, doing 22 math in my head, results. 23 But also for each of those wells we have at 24 least 25 constituents that we've measured. So that 25

Page 366 gives you approximately 2,100 sample results that we 1 2 have, constituent results. 3 And if you look at then the highlighted constituents that are above risk-based screening levels 4 5 or EPA drinking water standards from all three rounds, they represent in total less than 7 percent of the total 6 7 data sets from these three rounds of sampling. So I 8 think you need that additional context. 9 0. With regard to total dissolved solids, since you had that chart up there, does the fact that that 10 11 sampling was done in an alluvial aquifer and in an 12 agricultural area have any bearing on what you'd expect to see with total dissolved solids? 13 It could. I think it's not surprising for an 14 Α. 15 alluvial aquifer that has a lot of different geologic characteristics to it. 16 17 Ο. And while we're still talking about those 18 charts, you said -- you kept saying when you were 19 talking about those -- those readings that were in the 20 blue or above the blue, that they were potentially 21 harmful. Why were you saying they were potentially harmful? 22 23 Α. Because to actually have harm you have to have that complete linkage to exposure, and because this 24 groundwater in the alluvial aquifer is not being used as 25

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| 1 | drinking water, nor would it be, then we don't have |
| 2 | where there is no exposure there is no risk, and that's |
| 3 | very important to keep in mind. And more importantly is |
| 4 | the results from the bedrock wells, that all of which |
| 5 | were below risk-based screening levels. |
| 6 | MR. TRIPP: And I just wanted to point out to |
| 7 | the Commission that those Golder deep well reports are |
| 8 | actually already in evidence. They are Schedule 16 and |
| 9 | 17 to Craig Giesmann's testimony, just for the record. |
| 10 | BY MR. TRIPP: |
| 11 | Q. There is you mentioned a couple times |
| 12 | reducing environment, Dr. Bradley. What is a reducing |
| 13 | environment? |
| 14 | A. You can either have an oxyger (phonetic sp.), |
| 15 | an anoxygen (phonetic sp.) environment. So where you |
| 16 | are oxygen you can have certain types of chemical |
| 17 | reactions. In a reducing environment you don't have as |
| 18 | much oxygen, and generally that's representative of |
| 19 | wetland areas or areas with a lot of sediments or |
| 20 | organic materials. |
| 21 | And it's in these reducing environments that |
| 22 | particularly arsenic, iron and manganese can be |
| 23 | mobilized from naturally occurring soils. |
| 24 | In an oxidizing environment you wouldn't see |
| 25 | them being mobilized but there are other constituents |

Page 368 that are more mobile in an oxidizing environment. 1 2 Dr. Bradley, do you have Exhibit 353 in front Q. 3 of you? That's that USGS information that Ms. Lipeles 4 provided you about the different sampling areas. 5 Α. Yes. One moment. Yes. A couple questions about that data -- or data 6 Q. 7 I guess you say. 8 Α. Data. 9 Do you know where any of these wells are Q. 10 located in terms of the geology? I do not. 11 Α. 12 Do you know even if there is a closer Q. 13 sampling data -- data from an alluvial aquifer that is 14 closer than actually the New Haven -- I think it was --15 the New Haven outfall? I really have no idea where any of these are 16 Α. 17 located, so I couldn't --18 I notice that a lot of the data is -- you Q. know, some is from 2000, some is from 1982, 1992. 19 20 Does -- I just don't know. Does the 21 background change over a period of time, or do you know? I mean, it certainly can. We're seeing that 22 Α. in the alluvial aquifer currently that there's 23 24 variability in those concentrations with time, and we'll certainly have a better picture of that at the end of 25

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| 1 | the monitoring program. |
| 2 | Q. Ms. Lipeles had you read out read out of |
| 3 | Chapter 256 regarding geological work? |
| 4 | A. Yes. |
| 5 | Q. Do you represent yourself as a geologist? |
| 6 | A. No, I do not. |
| 7 | Q. Have you performed geology work in this case? |
| 8 | A. No, I have not. |
| 9 | Q. Do you have geologists on staff that you |
| 10 | consult with? |
| 11 | A. Yes, I do. |
| 12 | Q. And I think you mentioned earlier Golder? |
| 13 | A. Golder. |
| 14 | Q. Who is Golder? |
| 15 | A. Golder & Associates is a national consulting |
| 16 | firm that's they have an office in the St. Louis |
| 17 | region. They have geologists and hydrogeologists on |
| 18 | staff. |
| 19 | So they are the group that designed the |
| 20 | bedrock monitoring program, that did the surface water |
| 21 | sampling that I talked about earlier, and that have done |
| 22 | for our more recent report of the three rounds of |
| 23 | sampling data and the surface water data, the summary of |
| 24 | the geology and hydrogeology of the area. |
| 25 | Q. And in terms of the actual sampling results |

Page 370 1 that were taken, were those verified by you or by Golder 2 or by somebody else? 3 Α. The -- the data were validated by chemists at Golder before we used it. 4 5 MR. TRIPP: I don't have any other questions, Your Honor. 6 7 JUDGE WOODRUFF: All right. Ms. Bradley, you can step down. 8 9 THE WITNESS: Okay. Thank you. 10 JUDGE WOODRUFF: All right. Well, we've 11 reached the end of the day for today. We have -- Gary 12 King I believe would be the next witness and then Tyler Gass for Ameren. 13 14 MR. LOWERY: Actually, Your Honor, as the procedural schedule indicates, Mr. Gass is not -- he 15 doesn't get into Jefferson City until tomorrow evening, 16 17 and so I assume we'll just press on, maybe go on to Mr. Norris if we get there, which it looks like we're 18 going to, and then we can start with Mr. Gass on 19 Wednesday morning. He would be our only witness. 20 21 JUDGE WOODRUFF: Okay. That would be fine. So with that then we are adjourned now until 22 23 tomorrow morning at 8:30. 24 WHEREUPON, the evidentiary hearing concluded 25 at 4:45 p.m.

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| 2 | |
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| 5 | hereby certify that the testimony that appears in the |
| 6 | foregoing transcript was taken by me to the best of my |
| 7 | ability and thereafter reduced to typewriting by me; |
| 8 | that I am neither counsel for, related to, nor employed |
| 9 | by any of the parties to the action in which this |
| 10 | hearing was taken, and further that I am not a relative |
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| 12 | parties thereto, nor financially or otherwise interested |
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